1986

Cost awareness : a paramount factor for the national fleet in developing countries

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A PARAMOUNT FACTOR FOR

THE NATIONAL FLEET IN

DEVELOPING COUNTRIES

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C U B A

A paper submitted to the Faculty of the World Maritime University in partial satisfaction of the requirements for the award of a

MASTER OF SCIENCE DEGREE
in
GENERAL MARITIME ADMINISTRATION

The contents of this paper reflect my personal views and are not necessarily endorsed by the UNIVERSITY

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Date: October 27th 1986

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AKNOWLEDGMENTS

I sincerely thank all of those permanent and visiting professors of the World Maritime University, people of different institutions we visited during our various "Field Trips" and during my "On-The-Job-Training", who have contributed substantially either through agreement or by offering contra-views, to upgrade my own knowledge and understanding of shipping of today, and to give me an opportunity to provide a greater contribution to my own country.

I would like to thank my friends and colleagues for many fruitful and friendly discussions we have had during my tenure in WMU.

I also sincerely thank Mrs. Inger Battista for her valuable help converting my Spanish-English to a tolerable level, and Miss Alison Howe for typing my illegible hand-writing.

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CHAPTER I

INTRODUCTION

The second half of the present century has been a period of increasing involvement of developing countries in the transportation of cargo by sea. Their fleets have gradually gained share in the World Merchant Fleet.

The defensive measures usually adopted by developing countries to protect their infant fleets from unequal competition with well established and sophisticated carriers,are the expression of a realistic position,since without protection, there is no hope to develop a fleet which comes into existance under critical conditions and consequently is unable to successfully compete.

Disregarding the motivations that each particular country has found to develop a national fleet, it is an essential condition that their fleets do not constitute a burden to their national economies. It should however create a positive effect on the Balance of Payments of the country concerned.

A problem which leads to diminish or even jeopardize the achievement of such an indispensable positive effect on the Balance of Payments, is a lack of cost awareness.

People working in shipping companies under protection:

- -Become so familiarize with such protection that they begin to consider it a natural right instead of a necessary help;
- -forget the importance to the national economy of

having a cost efficient fleet;

-Tend to separate the aim of the shipping company from the aims of the country as a whole, when looking for ways to be profitable;

-learn to run the vessels with out paying proper atention to cost-related problems, and ;

-do not clearly identify the factors influencing the cost and consequently are unable to act upon them.

This problem gives rise to the purpose of this paper which may be summarized through the following objectives:

1. To make those persons involved in shipping in developing countries, aware of the importance to the national economy of having a cost efficient fleet.
2. To provide a memory guideline of the factors influencing costs in a shipping company.
3. To arouse an interest amongst readers to go deeper in the cost reduction studies or research.

As can be expected from the proposed objectives, this paper will not disclose any new method or proposal to solve problems. It will just bring together a number of well-known ideas and knowledge which should always be in the fore front of the minds of those persons involved in shipping in developing countries. Therefore the usefulness of this work should be assessed by the degree to which it has conveyed its message of cost awareness, a message which is much needed in the shipping companies of developing countries today.

The steps which will be followed to achieve the objectives of this work are:

In the first part,

- to highlight why most developing countries have not been endowed with suitable conditions to become maritime nations,
- to present the various motivations of developing countries, which prompted them to invest in shipping and the critical conditions which they have had to face in doing so,
- to describe the way in which developing countries have secured employment to their national fleet.
- to analyse the valid economic criteria that developing countries should consider to develop a national fleet,
- to highlight what should be the ultimate goal for a developing country's national fleet.

In the second part,

- to identify the factors influencing costs in a shipping company.

Scope of this paper. It may be observed that the aspects related to the commercial operation of vessels have not been discussed due to a time limitation. However, and since they do greatly influence the maximum use of the tonnage available and consequently, the minimizing of cost/ton carried, they should be another important area of study for those committed in making more efficient the fleet of their respective countries.

Method of approach of the second part. The factors influencing costs in a shipping company have been associated to the basic cost items which are closest to their character. Thus, through the following breakdown such factors are analysed in Chapter V, VI and VII respectively:

- capital costs
- operational costs
- voyage costs

FIRST PART

"ECONOMIC ASPECTS"

CHAPTER II

CHARACTERIZATION OF THE MARITIME TRANSPORT

2.1 THE ROLE OF MARITIME TRANSPORT

2.1.1 Transport as part of the production process

The production process has had different degrees of specialization and division of labour in every single historical moment.

The specialization and division of labour have been a cause and at the same time an effect of humanity's development.

Concurrently with the specialization and division of labour, the needs to move the results of such specialization commenced as well, i.e. the commodities had to be moved from where they had been produced to the place where they would be used.

A commodity has a real value if it can be used. Otherwise it does not have any value at all. In other words, a commodity has not been finished until it arrives at the place where it will be consumed either directly d or to be incorporated in a new production process.

Obviously the essential movement of such commodity has to be made by specific means, i.e. means of transportation. So the means of transportation, when engaged in the movement of merchandise, are part of the production process.

The process of cargo carriage is then an essential part of the production process.

2.1.2 Transport as a Cost Factor in the Production Process

The principal aim for human beings is to totally satisfy their needs. In order to do so, human beings have to produce.

Production is a process where both human resources and material resources are spent. The fewer resources consumed per unit produced, the more rational and effective the production process will be. Then the problem may be constrained to achieve the lowest cost of production.

As it was mentioned before, the transportation of goods is part of the production process, so as far as transportation is concerned the most important issue, to human beings, is to obtain the lowest costs of transportation. (It should be understood that transportation has to be performed with the right quality and at the right time.)

To particular individuals, or to a particular group of people the problem is how to obtain more profits from the carriage of goods, however to human society the problem is how to transport the goods with the lowest possible costs.

2.1.3 Transport as an Economic Developmental Factor

The transport is an active factor in the economic development process.

By this is meant that the development, the specialization and technical improvements of means of transportation

bring together a reduction in the costs of transportation. Consequently the possibilities of linkage areas, which were not economically linkable before, will be increased.

Then the specialization in these areas may be greater because the possibilities of cooperation will also be greater. Therefore, each particular area will benefit from the economical advantages of such division of labour. Each area may concentrate its resources in the production of the particular goods in which it has cost advantages. As a result its economical growth may be increased.

2.1.4. Maritime Transport and Trade

It has been pointed out that the specialization and division of labour in the production process, brought at the same time,the needs of moving the result of such specialization from the places where they had been produced, to the places where they would be consumed.

However, it has not been mentioned through which mechanisms the cooperation among different producers was performed.

Nowadays such mechanisms are what is known as trade. Then the trade is the leitmotiv factor which creates demand for transportation.

There is an unbreakable unit between trade and transport. The demand for transportation arises from the demand for trade. If there is no trade, there is no demand for transportation.

Keeping in mind that on our planet three-fourths of the surface is covered by oceansr, then it is easy to understand the strong relationship between trade and maritime transport.

"It is stated that in international trade, about 95% of all goods are carried by ships." (1) Maritime transport is then a decisive factor in international trade.

This is especially true nowadays when the , technological and scientific achievement of mankind have made it possible to build sophisticated maritime crafts. The scientific and technical revolution plays an active role in the process of making the characteristics of the vessels more and more coinciding with the needs of the trade.

The more suitable the ships are to the trade's needs, the more beneficial the international trade will be.

The great subordination of the demand of transportation to the trade makes maritime transport especially sensi tive to any fluctuation in international economic activi-ties.

Therefore, the economic, political, social and physical events which have a direct effect on trade will also pro-duce effects on the demand for maritime transport.

To summerise, maritime transport is the servant of trade and at the same time, international trade cannot exist without its servant.

2.2 Brief Description of Historical Movement of Goods by Sea

The history of maritime transport is strongly connected to the history of trade.

The nations which have controlled the trade and resources of the world have been in the most suitable positions to enjoy the benefits of maritime transport.

History shows a direct interaction between trade and the control of economic resources.

In the times when Spain and Portugal had the greatest empires beyond their boundaries, they acquired enormous amounts of wealth.

Background Shipping in Dev. t.

The needs of transporting resources that they were getting from their colonies and the availability of the wealth were the causes of their rapid fleet development. They could increase their fleets' cargo capacity, despite the fact that at that time it was also a capital intensive investment, since the capital they were accumulating from their colonies, and because they had the total monopoly of the trade to ensure employment of their vessels.

Although some time afterwards, the same phenomenon occured in other European countries such as Great Britain and the Netherlands.

The English colonized other regions beyond the seas. They established a great empire. They reserved trade with their colonies for themselves by means of protectionist legislation. As a result, British naval power was

increased, maintaining a very relevant position for many years.

Closer to the present time, the Industrial Revolution took place. New trading relations among nations were essential for the development of the industries.

Those countries whose industries were developing rapidly had the most suitable conditions to reap the benefits of maritime transport. They had as many economic resources as the new trade relations required to invest in shipping, as well as the technical advantages to do so. In addition these nations became indispensable to other countries in need of finished goods.

On the other hand, there was a large number of countries with inadequate economies, generally mono-producers, with a scarcity of financial resources, with very poor or no industrial development at all, with populations unfamiliar with technical culture and with no infrastructure among other things.

Many of these countries were colonies; others which had achieved their independence remained dependent on their former colonizers, through economic relations which were not very different from those existing before.

As a result, all those countries kept their positions and conditions as raw material suppliers and great markets for finished goods. Obviously they could not invest in shipping, they could not create a maritime tradition, they could not enjoy any advantages of the transport of their trade.

Thus, new commercial relations and an impressive advent of the technical improvements took place only in those countries where, the capital had accumulated from many years back.

Their economies skyrocketed. The trade among them had a tremendous expansion. The rapid technological evolution and the increasing needs of their trades had their effects on the maritime sphere.

"The rapid technological evolution in the maritime sphere frequently creates excess capacity, as a high wage country like Britain could only operate with the most modern tonnage, continuously built new ships." (2) As a result, a cheap market of sound second-hand vessels came into existence. Different constraints, as for example wars, provoked a boom of freight rates.

From the above mentioned situations, Scandinavian countries and especially Norway showed a good ability as regards how to buy and sell second-hand vessels at the right moment, and in this way they were able to build up a strong fleet. So they became 'new' maritime nations of those times.

However, they became 'special' maritime nations because most of the cargo they transported did not belong to their own trade, but to the trade of a third country. In other words they became cross traders.

Finally the 20th century came with a world fleet share structure which was not well spread out.

Indeed there were few countries which had almost all of

the sea-going vessels of the world, and consequently they were the main carriers of the international world trade.

Different political, economic and social constraints have taken place in this century, i.e. the two world wars, the advent of the socialist system in the world, economic crisis and depression periods, capital internationalization especially in shipping, the increasing gap between developed and developing countries, independence of the remaining colonized countries, social revolutions, the awareness by Third World of their unbearable economic and social problems together with nationalistic attitudes to solve them.

All of the above mentioned factors in some way or other have contributed to changes in the world fleet share structure.

Many more countries began to invest in shipping and the former and relatively limited ownership of the world fleet by a few countries started to disappear.

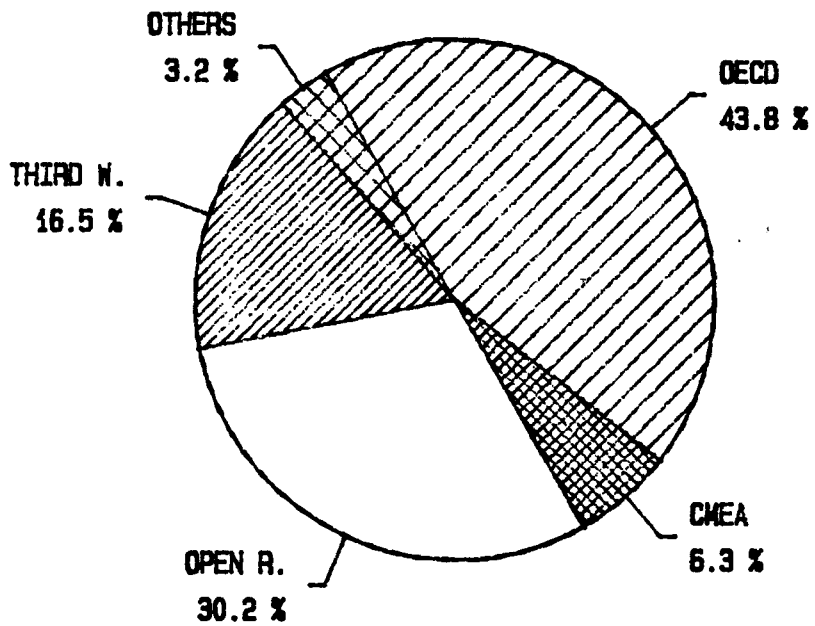
In the year 1900, only *twelve* countries accounted for almost 93,7 % of the World Merchant Fleet share, in terms of gross tonnage. (see Annex I) However, by the year 1985, *sixty two* countries accounted for the identically similar share of 93,7 % of the World Merchant Fleet (3), but in terms of deadweight. (see Annex II)

Certainly, the ownership of the World Merchant Fleet is still concentrated in developed market economies accounting the 43,8 % under their flag and considering that the largest part of the 30.2 % of the Open Register countries share belong to them. (see Annex III)

However it is noticeable that developing countries, which had an insignificant share in the year 1900, have increased their share to 16,5 % by the year 1985. (4)

Fig. 2.1

WORLD MERCHANT FLEET DISTRIBUTION BY GROUP OF COUNTRIES AND DWT



Source: ISL ; (Bremen)

NOTES AND REFERENCES

(1) Conference on Ship Costs at UWIST, *Maritime Policy and Management* ; January/March 1984 ; p.1.

(2) Rigmor, T. and Brodefords, R. "The Commercial History of Shipping" ; Gothenburg, Sweden, 1983 ; p. 168.

(3) Institute of Shipping Economics and Logistics of Bremen, *Shipping Statistics* ; January 1986 ; p.p. 12 - 13.

(4) Ibid., p.14.

Monsef, A.A. , *Shipping Economics Hand-out* ;WMU.

CHAPTER III

MARITIME TRANSPORT IN DEVELOPING COUNTRIES

The last three decades have constituted an important awareness period for many developing countries as regards their crucial needs.

This period of time has been filled with examples of nationalistic movements which have risen to power.

When in power, they have encountered extremely grave social problems, great deformation of their economies, either poor or non-diversified production, strong economic dependence on other countries, very low incomes coming from their export, political pressure through tied economic links , deterioration in the terms of international trade as well as protectionist policies in other countries.

In other words they have met with all sorts of conditions which have provoked the gap separating them from the industrialized countries to grow even wider, and which have made real political self-determination difficult to achieve due to their economic dependency on other countries. They realized that actions were unavoidable if any changes were aimed for the benefit of their people.

In fact, different ways were taken, many structural changes occured, and many new areas within their economies were opened.

Areas such as shipping frequently became a focal point of

the developing countries' attention due to various reasons and motivations which will be analyzed in the following section.

3.1 Motivations of Developing Countries to Develop Their Own National Fleets

Normally, developing countries have not found only one single motivation to invest in shipping, but many motivations. However, to make this explanation easier and more concise, the main motivations will be briefly analyzed case by case.

In the following explanation, such motivations will not be judged, only presented. Further criteria regarding the economic conditions which should exist to invest in shipping will be analyzed in Chapter IV.

3.1.1. New Source of Foreign Exchange to the Balance of Payments

In general terms it has been pointed out that the value of maritime transportation is approximately 10% of the Cost Insurance Freight (C.I.F.) value of the carriage of goods by sea.

Taking into consideration the many hundreds of millions involved in international trade, it is obvious that the nature of the carriage of goods by sea is profitable as well.

Some countries feel that if they enter in such business

they will have an immediate source of foreign exchange income due to the fact that there are always international needs of cargo carriage by sea.

3.1.2 Saving of Foreign Exchange to the Balance of Payments

Maritime transportation is an unavoidable requirement in mostly in all countries in the world. It usually represents a sound part of the trade value as was mentioned earlier.

Consequently, the disbursement of foreign exchange in freight terms is a relevant item on the balance of payments.

Many developing countries face scarcity of foreign currencies. They consider that having their own national fleet to carry their own trade is a way to avoid an important flight of foreign currencies.

3.1.3 Diversification of Industry

Developing countries are mainly primary goods producers. Their products generally have low prices on the market. They have urgent needs to multiply their incomes. It cannot be achieved through increases of their traditional goods production, but through industrialization.

Some developing countries find the shipping industry especially suitable to add value to their productions for several reasons viz:

a) Contrary to the majority of other industries, shipping requires a very short time for investment, meaning that time, from the moment the decision to invest is taken to the moment when such investment begins to produce, is quite short.

b) Shipping does not necessarily require additional expenditure on infrastructure as for other industries.

c) Ships may be operated immediately, even in cases when the country does not have trained people, since there is an internationally qualified manpower market available.

d) Ships are by themselves a good security to the people who grant loans, so sources of financing are more easily attained with respect to other industries.

e) Ships are more flexible investments than many other industries because firstly they may be used in different trades, and secondly they may be easily sold at any time.

f) Shipping may be the counter or pivoting point to develop connected industries.

3.1.4 Expansion of National Trades

Developing countries without fleets have been deprived of expanding their trade to other potential markets where they would have found better commercial conditions for their products because no transportation services were offered.

Generally, foreign liners do not start to offer any services if there is not enough cargo to assure a minimum level of profit in the short-medium run.

Therefore, to establish a national fleet is an answer to trade expansion for some developing countries.

3.1.5. Regional Integration

It is a fact that many developing countries are not able to economically bear the total industrialization which is needed to produce semi- and fully manufactured goods. However, it may be attained with regional integration. The possibilities to avoid duplication of efforts, to achieve scale economy, and to have complementary production are increased with regional integration.

However, such integration is poor or completely nil, since adequate maritime services are not available. It is consequently another motivation for developing countries to invest in shipping.

3.1.6. Strengthen the Position with Respect to Conferences

In spite of the fact that conferences bring some advantages to shippers, it is not unknown that they are monopolistic organizations by nature, so the main benefits are achieved by shipowners and moreover, shipper's positions are exposed to a great extent to the shipowners' interests.

The conferences limit competition from both outsiders and within the conference through pooling. Consequently, the advantages of free competition disappear and undesirable effects on the shipper's interest may arise. Such effects are listed below.

- Efficiency of service may decrease.
- Freight rates may be increased excessively.
- Promotional trades may not find the appropriate ground to be developed.
- New trade requirements may not find an appropriate answer in the conference's services.
- Loyalty arrangements may destroy the shippers' freedom to choose either the most suitable means of transportation or the most convenient terms of trade as the case may be.

Some developing countries have found that establishing their national lines, they have been able to diminish the harmful effects of the conferences' monopoly on the transportation services.

3.1.7. Economic Independence

Economic independence is a necessary requirement to exercise self-determination. This phenomenon has been proved especially in times of war and world crisis.

As many countries perform a substantial part of their trade by sea, they are sensibly affected when they are deprived of maritime services.

In practice, there are developing countries which have

developed their national fleets much faster than it would have been if no blockade or no economic boycott had existed.

No other way could have assured the indispensable independence to carry the goods of their trade.

3.1.8. National Security

In close relation to the above, there is national security motivation to be taken into consideration.

Some developing countries have been threatened by military intervention because of their non-acceptance of other countries' political conditions.

In this situation, national fleets have enabled them to carry the necessary weapons for their defence.

In time of emergencies, the national merchant fleet also become that vital link of supply and the second line of defence.

National security is not motivation that is specific to developing countries.

Nowadays when the market is so depressed and some developed countries' fleets are unable to operate on a profitable basis, the governments of these countries are giving subsidies to their fleets, because of national security inspirations among other reasons.

3.2 Conditions Met by Developing Countries when they Decide to be Involved in Shipping

Generalizations are always highly susceptible to having weaknesses even more so if such generalizations are related to socio-political and economic issues in a great variety of countries with different degrees of development, and different socio-economic systems as developing countries are. On the other hand, to specify case by case would need a study by itself.

Therefore, and since the objective of this study permits it, just the critical conditions which may be found in developing countries when they begin to run their fleets will be presented.

Keeping in mind the above mentioned clarification and knowing that the following statements may have different emphasis in each particular country, then it is possible to go towards the issues themselves.

3.2.1. Scarcity of Capital

Shipping is a capital intensive industry by nature. It is necessary to mobilize enormous financing resources to acquire even a single vessel.

Yet developing countries have not only a great many urgent needs to solve in different economic and social areas, but also a scarcity of financing resources to work with. They have to decide which areas should be given priority and to what extent.

The shortage of financing resources does not enable them to invest in shipping as fast as they may require. So they usually try to obtain loans abroad, which are commonly given with high interest rates, causing an extra burden of foreign currency.

3.2.2. Shortage of Cash Flow

Especially in shipping, having no money at the right moment causes losses. It happens often in developing countries.

Running a fleet brings the necessity of having a sound quantity of cash flow because the vessels when in operation around the world are bound to allocate money in advance to cover their possible expenses. Otherwise they could be stopped and consequent losses would arise.

In addition, some spare parts and other supplies are required on board if something happens; the fast delivery of such supplies is strongly linked to the shipowner's ability to face immediate payments. If unable, consequent interruptions may occur to the ship's operations.

3.2.3. Inadequate Infrastructure

Lack of a Back-Up Industry: Developing countries have a poor level of industrialization, if any.

Vessels are complex pieces of machinery which require constant repairs and maintenance as well as many specialized supplies.

The less industrialized a country is, the more obligated this country will be to rely on the international marine industry to cover any single need of its fleet. Consequently, the foreign exchange expenditure will be greater.

Insufficent Communication Network: Shipping is an international industry by nature. Its place of performance covers the whole world. As a result, and since information is a primary condition to success, it is essential that those countries involved in shipping have modern communication systems. Good exchange of information between ships and their headquarters is necessary. It is also vital that the managers are well-informed and up-to-date with what is happening in the shipping world so they can make the correct decision needed. The more informed a decision maker is, the better the decision he is able to take.

Developing countries do not usually have as modern and efficient communication networks as other countries have. Therefore, they are unable to operate their fleets with the same margin of trust as other countries do.

No Appropriate Links: To be properly involved in shipping, it is not enough to possess only the related activities as for example ships' agencies, ship chandlers, shipbrokers, bunker suppliers, and a maritime administration. There must be adequate links among all of them.

Every component of the maritime infrastructyure in a country has a role to play, no matter how small or large

the contribution may be; what is very relevant to the efficient operation of vessels is that all of the components work properly as a system and not as individuals. Cooperation has to prevail.

Attaining a well organized infrastructure is not possible in a matter of days. It is achieved with time. Essential links and interwoven actions among all the components of a maritime infrastructure are the result of organization and experience which are rarely found in developing countries in the first stages of shipping.

3.2.4. Lack of Skilled People on Shore

Shipping is a complex and very specialized activity which undoubtedly needs skilled people on shore to ensure its successful performance.

They are, together with the seamen, the most important assets for the maritime activity in any country. They are the managers, the agents, the shipbrokers, the superintendents, and the surveyors, among others.

Their skill in the maritime field will to a great extent determine the efficiency that shipping will reach in the particular country.

Unfortunately, to developing countries, such skills are only achieved by day-to-day work combined with theoretical studies.

Therefore, developing countries have to suffer the disadvantages of this situation, at least at the beginning of

their incursion in shipping.

3.2.5. Lack of Seafarers

As a result of having no fleet, developing countries find a lack of national seafarers when they start to be engaged in shipping.

At least to the present times, ships require crews to sail. Among the crew, the officers have a special significance since they have to be trained in specialized academies for several years.

Therefore, it is implied that having no national seafarers will obligate these countries to rely on foreign crews, if not forever, at least until the country is able to train their nationals. This situation may bring extra expenditure of foreign currencies to the detriment of the balance of payment.

3.2.6. Lack of Training Facilities

Maritime training facilities are not institutions which can be created from one day to another. They require financing and qualified staff.

Additionally, even in the case of having both financing and qualified instructors, it may not be economically feasible to create a maritime academy if the number of trainees does not exceed certain limits per year.

Those developing countries which have no training institutions find difficulties in establishing them because of

the aforesaid reasons. So they may have to solve these problems by either regional training institutions or sending their nationals abroad.

3.2.7. Lack of Maritime Tradition

Maritime tradition is a subjective matter since it is a consequence of human attitude as regards maritime issues.

However, the result of having no maritime tradition is clearly felt on the outcoming results.

People in countries without maritime traditions such as most developing countries, are unable to act as quickly and efficiently as people in traditional maritime nations when new situations arise.

Tradition is shipping takes special relevancy because in it there is a great variety, in nature and in number, of unpredictable events which may occur.

3.2.8. Inbalanced Trade

Developing countries generally export raw material and import manufactured goods. So their cargo sturcture differs in outbound trade with respect to inbound trade. In addition, they have poor or no regional integration which enables them to procure combined patterns in their transportation schemes in order to minimize unbalanced traffic.

As a result, they have to suffer either the cost disad-

vantages of having no specialized vessels or the consequences of ballast voyages if their ships are specialized ones and there are no possibilities to obtain cargoes from a third party.

3.3 Ways Used by Developing Countries to Secure Employment to Their National Fleets

Securing sufficient cargo to cover at least their vessels' costs is an essential need that every developing country involved in shipping has had to face, disregarding their motivation for establishing their national fleets.

However, to satisfy such need is not an easy task in a highly competitive market as shipping. Most Developing Countries have realized that their infant fleet can not succesfully compete due to the critical conditions in which they are established. Competition between unequals is never fair cmpetition.

Therefore, they have taken a realistic position i.e. to defend their infant fleet by different means. The presentation of such means will be carried out within the scope of the relevant type of transportation services.

The type of transportation services may be divided into two, i.e. liner services and non-liner services (often called bulk or tramp).

Liner shipping serves general cargo trade, (i.e. break bulk and unitized cargo trades), while non-liners serve

the bulk trade.

3.3.1. Bulk Trade

As far as the bulk trade is concerned, fleets in developing countries usually secure cargo through the following means:

- unilateral cargo reservation by national legislation,
- bilateral cargo reservation agreements between trading partners,
- commercial transactions on FOB import basis and CIF export basis together with cargo allocation for national operators,
- softer taxation schemes to cargoes carried on national vessels.

Some other protectionist measures may be named; however, those which have already been pointed out, are enough to illustrate that very rarely, if at all, is the free market competition the way taken by infant developing country's fleets to go into the shipping world, wherein some free market advocators have already implemented such protectionist measures.

3.3.2. Liner Trade

Something similar in essence occurs in the general cargo trade, but different in appearance since the nature of the trade itself is much more complex than the bulk trade.

General cargo trades require vessels operating on schedule in preestablished ports. They are commonly called liner vessels.

Liner operators have always been extremely concerned with securing the cargo for their vessels because of the high economic risk involved in such services when the ships have to sail whether or not the cargoes on board cover the costs.

Precisely because of those reasons, and disregarding extra profit-oriented motivations, the liners which used to be associated in conferences monopolize partially or fully the main trading routes between nations, regulating in this way the competition.

Consequently developing countries in their efforts to participate in the carriage of general cargoes have become liner operators themselves.

As liner operators, they have adopted different policies concerning their position on the market, viz.

- to become members of settled conferences,
- to make cargo-sharing agreements with independent liners,
- to operate independent and exclusive liners,
- to create bilateral or multilateral services among partner trade fleets.

In the named cases and in any other case, the developing countries' possibilities to operate on such markets have been achieved in connection with their own international trade and no other country's trade. Because precisely,

it is their own trades where cargo reservation policies had been possible to implement.

An infant merchant marine fleet would be unable to go into the the business if no cargo protection policy measures were taken to their benefit.

The means through which these policies have been materialized as regards liner cargoes are as follow:

- cargo reservation on a unilateral basis,
- bilateral treaty between trading countries,
- implementation of international instruments (Code of Conduct for Liner Conferences),
- port dues differentials,
- preferential assignment of berth,
- tax exemption for cargoes carried on the national fleet,
- commercial transaction on convenient terms, i.e. FOB import and CIF export, and allocation of cargoes on national operators.

In conclusion, in most cases, developing countries have realized that their infant national fleets have no possibilities to succeed in operating under free market conditions; as a result, their efforts have been mainly addressed to the carriage of their own trades.

Before finishing this subject it is worthy to emphasize that a permanent and irrational protective policy may lead to inefficiency of the national fleet. Therefore, considering that it is in the attitude of the persons engaged in the shipping industry, where the harmful effects of the protectionist policies arise, then it is

advisable to find out a sort of motivating force, through which the personal interests of the people engaged in shipping are correlated with the achievement of defined targets i.e. efficiency oriented targets.

REFERENCES

Couper, A.D. , "Ships and Cargo - Economic and Competition", *Lecture, Marine Affair Course, International Centre for Ocean Development* ; WMU, 1986 ; Vol.1. , p.p 219 - 229.

Frankel, E.G. , "Impact of Cargo Sharing and other Restrictive Shipping Shipping Practices" ; Massachusetts Institute of Technology, April 1985.

Monsef, A.A. , *Shipping Economics Hand-out* ; WMU.

UNCTAD, "Conference Practices and Adequacy of Shipping Services" , *The liner Conference System, Report by the UNCTAD Secretariat* ; Geneva 1970

UNCTAD, "Establishment or Expansion of Merchant Marines in Developing Countries", *Report by UNCTAD Secretariat, , TD/26/Rev.1* ; New York, 1968.

CHAPTER IV

ECOMOMIC CRITIRIA TO DEVELOP A NATIONAL MERCHANT MARINE IN A DEVELOPING COUNTRY

4.1 Effect on the Balance of Payments

The various motivations which developing countries have had to develop national fleets have already been pointed out; some of them are economic ones while others have a different back-up nature.

From now on, this project will deal only with economic criteria, disregarding any others. Nevertheless, it does not mean that the same should be done by developing countries; on the contrary, non-economic criteria may in particular circumstances have even greater relevancy than anything else, so they should also be considered in each particular case.

As regards the economic motivations to establish a national merchant marine, all of them aim at bringing a positive impact on the balance of payments in the respective countries, either directly or indirectly, in the long run.

So the subject matter is to evaluate if the establishment of a national merchant marine will have a positive impact on the balance of payments of the particular country.

To evaluate the impact of having a national fleet on the balance of payments is not an easy task since many considerations, estimations, and forecasts are needed. It

will become even more complicated if the net gain to the balance of payments is not expected from the fleet itself, but from the positive effect that such a fleet would bring to the trade, i.e. an indirect impact which has to be estimated in a macro-economic analysis.

The evaluation of the aforesaid impact has no unique method of calculation since in each particular country the benefits may arise from different sources as a consequence of specific endowed conditions of the country concerned.

Therefore, in this study, only a general description of the main requisites and difficulties which have to be considered in any economic feasibility study in order to evaluate the impact of a fleet on the balance of payments, will be presented, letting each country find its own way to draw the conclusions.

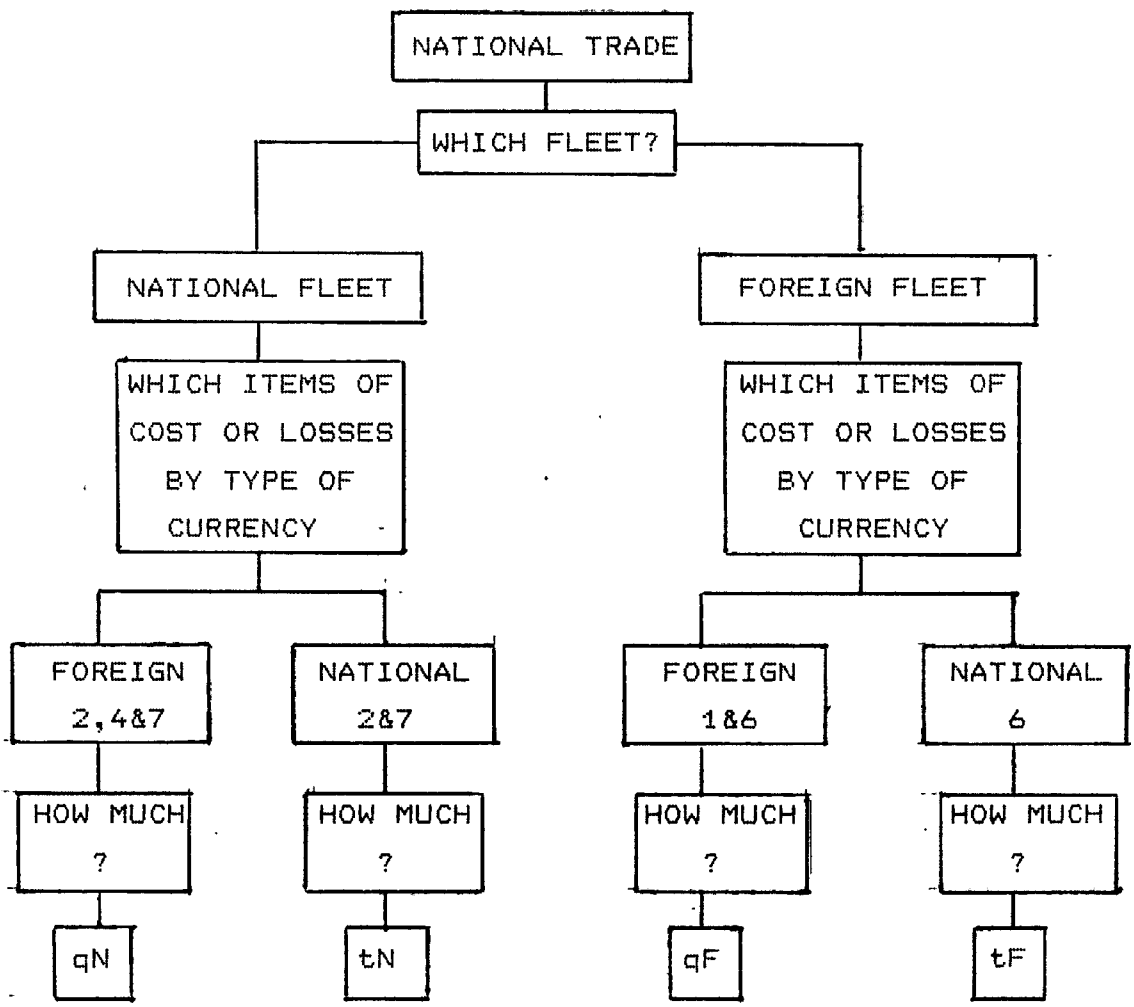
In order to simplify the explanation, the comparison between , the two opposite and extreme alternative to serve a country's international trade, i.e. with a national fleet only or with a foreign fleet only will be presented in table form. Of course in between there are many other alternatives, but here only the extreme cases will be presented.

To carry out the international trade of a country under each of the above mentioned options will cause different incomes and expenditure to the country. Some of them will be in national currencies and others in foreign currencies, depending on the case.

The different possible factors of expenditure and losses

that each alternative represents to the country as well as the income factors will be presented. However, instead of presenting the income factors in the alternative where they arise, they will be put as expenditures or losses in the opposite alternative, in order to have all the consequences of the different alternatives expressed in the same form, i.e. cost of each alternative to the country by the type of currency. For better comprehension of the table of the next page see the diagram .

IDENTIFICATION OF COST/LOSSES CAUSES; LINE OF APPROACH
Fig. 4.1.



In the table, the "x" symbol means that the item related might exist in the alternative and type of currency where such symbol appears. The "o" symbol means the opposite.

	ALTERNATIVES			
	Nat. Fleet		For. Fleet	
	Type of Currency			
	For.	Nat.	For.	Nat.
1. Cost of freight paid to foreign fleets directly or through CIF prices of goods.....	o	o	x	o
2. Cost of the national fleet				
- capital cost.....	x	x	o	o
- operational cost.....	x	x	o	o
- voyage cost.....	x	x	o	o
3. cost of training.....	x	x	o	o
4. loss of incomes at national ports due to no foreign fleets.....	x	o	o	o
5. loss of incomes at national ports due to national fleet.....	o	o	o	x
6. losses to the trade caused by non-markettable integration.....	o	o	x	x
7. losses to the trade caused by less efficient transportation services.....	x	x	o	o
T O T A L R E S U L T S	qN	tN	qF	tF

Abbreviation: Nat. = National ; For. = Foreign

The results from the above table help us to answer two main and relevant questions, viz:

a) whether or not having a national fleet would represent a net gain to the balance of payments, and

b) whether or not the investment in a national fleet is a matter of appropriate allocation of resources to the country.

National Fleet vs. Foreign Fleet

Taking the first issue into consideration, it may be elaborated as follows:

A national fleet would represent a gain to the balance of payments if:

$$qN < qF$$

where:

qN : total *foreign exchange* costs of the alternative where the international trade of the country is performed by a *national fleet*.

qF : total *foreign exchange* costs of the alternative where the international trade of the country is performed by a *foreign fleet*.

National Fleet Investments vs. Other Investments

Even in the case when a national fleet brings benefits to the balance of payments of a particular country, it does

not mean that such an investment is totally appropriate from an economic point of view.

In developing countries where there is a scarcity of foreign currencies, as is usually the case, it should also be proved that the national fleet investment is as good as any other possible option of investment in the country.

To prove the above, a coeficient "k" ,which indicates the lowest level of profits in foreign exchange per each unit of national currency expended that the country finds acceptable to invest,should be defined.

Such coeficient "k" is nothing else but an average ratio coming from the evaluation of the specific relevant investments that the country may make.

Having this coefficient, the issue can be expressed in the following terms:

To invest in a national fleet will be a good option of the allocation of resources if:

$$qN + k.tN < qF + k.tF$$

where:

qN : total *foreign exchange* costs of the alternative where the international trade of the country is carried out by the *national fleet.*

qF : total *foreign exchange* costs of the alternative where the international trade of the country is

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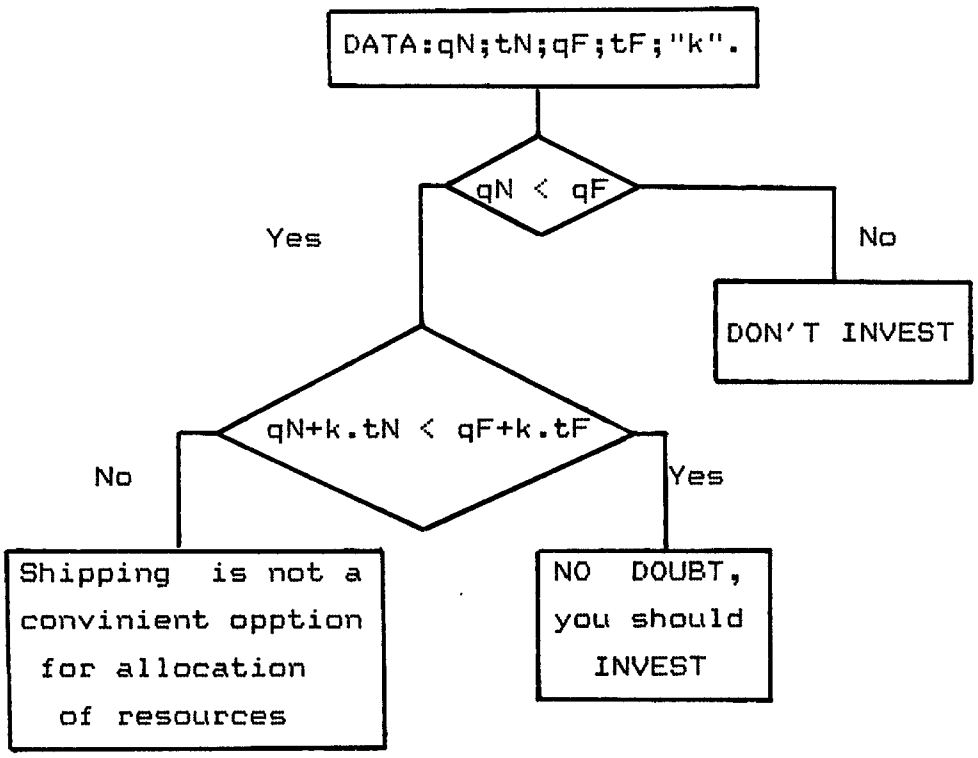
ied out by *foreign fleets.*

l *national currency* costs of the alternati-
where the international trade of the country is
ied out by the *nationalfleet.*

national currency costs of the alternati-
here the international trade of the country is
ed out by *foreign fleets.*

ds, in the above conditions, a national fleet
at least the same benefits to the balance of
any other investment considered acceptable to
A summary of the process of analysis is
the following diagram .

NALYSIS TO ASSESS THE CONVENIENCE OF SHIPPING
OM AN ECONOMICAL POINT OF VIEW. (Fig. 4.2)



Of course, the explanation and method followed until now are just one way, among others, in order to find the answers to the crucial problem, i.e. whether or not to invest in the shipping industry. It might be possible to attain results from other ways, however all of them must have the same basis and principles; the differences will just come from the type of calculations used and information arrangements made in each case.

Some additional comments have still to be devoted to this subject regarding the information required in order to draw the conclusions.

To obtain the proper information to make the analysis is extremely difficult because of the following reasons:

a) To define the possible levels of freight rates for the future is very inaccurate since they are fixed in the international market and exposed to quite unpredictable fluctuations for many reasons.

b) The possible cost of a national fleet also has to be estimated on a very uncertain basis hence no availability of statistics and misleading conclusions if data from other countries is used . In addition, the proportion of the cost by type of currency has to be estimated as well.

c) A hypothetical basis also has to be used to quantify the effects on the trade of having a national fleet or not having one.

d) The same uncertainty appears when the effects of both alternatives regarding incomes from national ports have to be quantified.

To sum up, most of the factors needed for the relevant analysis are uncertain, so many assumptions have to be made.

Consequently the people involved in such an analysis must have not only the appropriate qualification, but also as much knowledge of the country's potentials and specific conditions as possible, all of which will lead to more reliable conclusions.

4.2 Relevancy of Cost Reduction Within the Strategy of Having a Positive Impact on the Balance of Payments

As it was mentioned before, developing countries establish their national merchant marines aiming at attaining a positive impact on their balance of payments as far as economic considerations are concerned.

On the other hand and because of many reasons already analyzed, developing countries have quite a lot of disadvantageous conditions, which makes it impossible for their infant fleets to have a competitive capability on the open market in order to succeed.

As a result, they have taken a realistic position, i.e. to employ their fleets in their own international trades, at least in the first developmental stages.

Therefore, when a national fleet concentrates its operations on the international trade of its own country, the main impact on the balance of payments is usually obtained from freight savings previously paid in foreign exchange to foreign fleets.

Nevertheless, as was mentioned before, such a positive impact will only be achieved in the case where the country does not spend or lose more foreign exchange for having a fleet rather than not having one.

In the obtaining of such essential condition, one of the most relevant positions, if not the most relevant one, is the level of cost that the national fleet has.

The lower the level of cost/ton carried the national fleet gets, the higher the possibilities to bring a positive impact on the balance of payments will such a fleet have, and in addition, the bigger the impact will be.

It has to be emphasized, one more time, that the impact of a developing country's national fleet on the balance of payments will mainly come from foreign exchange savings rather than from new foreign exchange incomes.

As a result, from a national economic point of view, the most important goal is to operate the national fleet with the lowest possible costs in foreign exchange/ton carried, within the scope of the providing of an adequate and effective service regarding national trade needs.

If the cost per ton carried by the national fleet is higher than the freight rate which would be charged by foreign flag vessels to carry the same cargo, then that national fleet constitutes a burden to the economy of the country.

The practice of increasing freight rates beyond reasonable means is a superfluous and wrong method to make a national fleet profitable; eventually the

difference will be borne by the national economy. Furthermore, if the increased freight rates are also applied to foreign carriers, the national economy will suffer additional losess. Therefore, the task remains, is of *cost minimization.*

Cost minimization also enables national fleet to become a potencial source of foreign exchange earner for the country.

In the achievement of the lowest costs in foreign exchange/ton carried, many factors are involved; they act in different ways, occasionally in an opposite manner, they should constantly be identified and monitored, they should be the focal point of the managers' attention.

In general terms, three main ways can be identified to reduce the cost in foreign exchange/ton carried. Nevertheless, it should be borne in mind that such a division is just made for study purposes, since they really act in interrelation. These three main ways are the following:

- to reduce the total cost of the shipping company,
- to substitute those cost items normally spent in foreign exchange for national cost items, when economicaly feasible, and
- to increase the quantity of goods carried by each part of tonnage available.

Precisely, and following one of the objectives of this study, the second part of this study will deal with the first of the above mentioned ways, i.e. reduction of total cost in shipping companies.

REFERENCES

Goss, R.O., "Investment in Shipping and the Balance of Payments : A case - study of Import Substituting Policy", *Studies in Maritime Economics* ; Cambridge University Press, 1976; p.p. 44 - 60

Monsef, A. A. , *Shipping Economics Hand-out* ; WMU.

O'Laughlin, C. "The Economics of Sea Transport", *Pergamon Press* ; Great Britain, 1967.

Shneerson, D., "The Profitability of Investment in Shipping - The Balance of Payments Criterion" , *Journal of Transport Economics and Policy* ; september 1983.

UNCTAD, "Establishment or Expansion of Merchant Marines in Developing Countries" , *Report by UNCTAD Secretariat, TD/26/Rev.1.* ; New York, 1968.

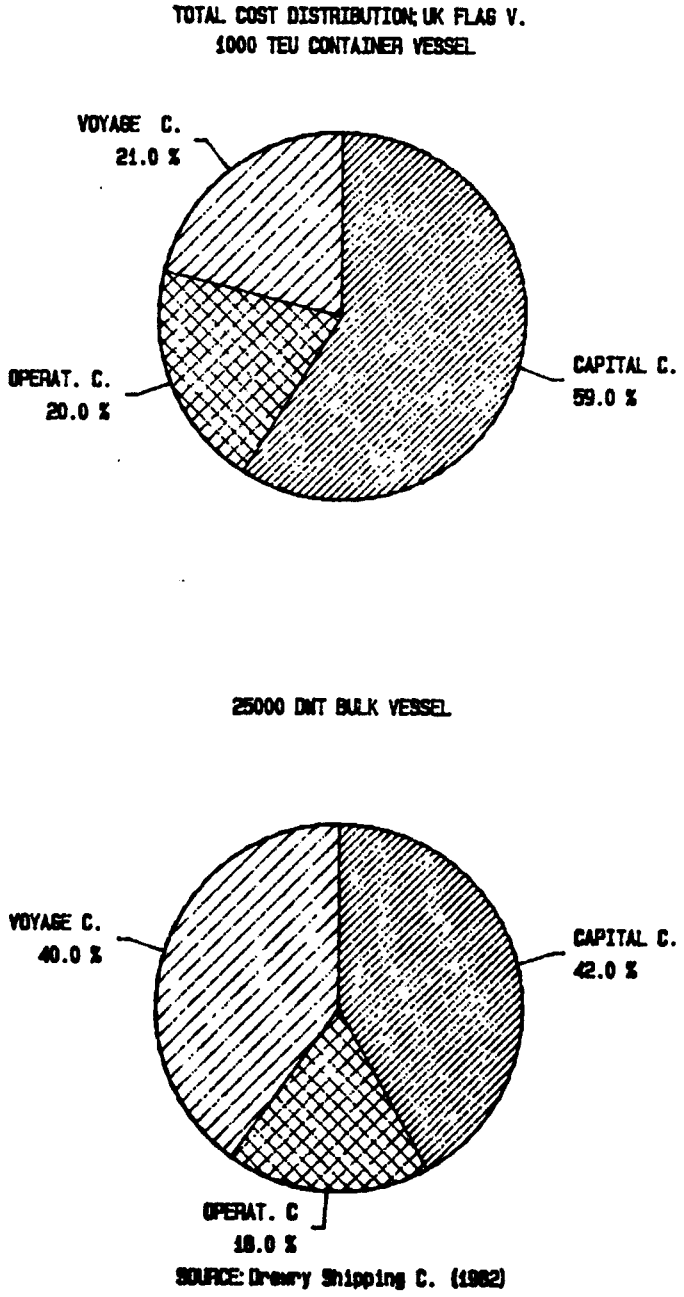
SECOND PART

"MANAGEMENT ASPECTS"

A REMARK.

Just to provide the reader an approximate idea of cost apportionment, an attempt is made to illustrate this fact through Fig. II.1 . It may be noted that the information given therein is of the year 1981 and may differ substantially as compared to the present time.

Fig.II.1



CHAPTER V

CAPITAL COSTS

Capital cost is an item which is classified as fixed cost in cost accounting. This cost does not vary after a ship has been acquired, and that is the reason why the term fixed is used.

However, the level that such a cost reaches is not only a consequence of external factors (i.e. the markets), but also the result of how the process of investment has been executed.

An appropriate approach to the investment process, is a requisite to avoid extra costs.

The two factors influencing capital cost are the price of the vessel itself and the interests over ship finance. Indeed both of them are part of the same process, i.e. investment.

The process of investment is not only the acquisition of the vessel itself but also the previous assessments which must be made before such acquisition is carried out. Such process may be subdivided into the following steps:

- definition of the optimum type of vessel
  - analysis of trade requirements
  - selection of vessel characteristics
- search for the most economical conditions
- acquisition of the vessel

5.1 Definition of the Type of Vessel

A vessel may be considered as an optimum vessel when she effectively meets the needs of her employment with the highest profits (or with the lowest cost according to the aim).

The subject of the optimum type of vessel may be subdivided for study purposes into two parts, i.e. trade requirements and the definition of the ship's characteristics.

5.1.1. Trade Requirements

Shipowners should gather, before making any decisions regarding what type of vessel to select, as much information as possible about the trade they intend to serve.

The identification of trade 'needs' are based upon different factors: the most relevant factors are as follows:

- cargo structure
- characteristics of each type of cargo
- value of the cargo
- ports of origin/destination of the different types of cargoes
- physical limitations of ports, channels and waterways
- technological cargo handling conditions in the ports
- balance of cargo traffic among the trading areas.

The demand of transportation is on the other hand, a dynamic force which is always changing. Therefore, shipowners should know the trend of the demand otherwise

they may incur costly mistakes.

If a shipowner acquires a ship without an appropriate assessment of the demand, he or she may discover afterwards that the ship is obsolete and consequently costly.

Shipowners must bear in mind that after a ship has been bought, nothing can be done but either keeping her undesirable characteristics with the corresponding negative effects or modifying her increasing costs.

In conclusion the profound knowledge of the demand enables shipowners to look for vessels whose characteristics are the most suitable ones.

5.1.2. Selection of the Ship's Characteristics

A vessel has the most suitable characteristics when she effectively meets the needs of the trade and at the same time, when she provides the highest economic result to the shipowner.

The main characteristics to be assessed by shipowners are as follows:

- transportation technologies available
- type of vessel
- speed
- size of the vessel (DW, cargo volume, number of passengers, special cargo facilities)
- fuel consumption
- number of decks and holds (not necessarily at this stage)

- main engine type
- cruising range
- type of cargo handling equipment and their capacities
- number of crew
- degree of automation

Undoubtedly, shipowners have to be familiar with what the trend is in the shipping world regarding the above mentioned characteristics. Nevertheless, the knowledge of such trends should be important indicative signals, but not at all conclusions.

The shipowners must bear in mind that what is suitable in general is not necessarily suitable for a particular situation. So each shipowner should assess through techno-economic feasibility studies which alternatives of the ship's characteristics are the most convenient.

Whenever is irrationally followed a trend, situations like above may arise:

The trend, as far as crew members are concerned, is to reduce the crew members as much as possible and to increase the level of automation on board due to high labour costs. But then, in a particular country where there are cheap labour and employment problems together with strict legislation which make it impossible to reduce crew members, it is decided to acquire the most automated vessel and at the same time keep a large number of crew on board. Obviously such a decision will cause cost increase.

Summarizing, shipowners must be aware of the requirement/trends of the trade they intend to serve, the

trend of the world shipping industry and the specific conditions of their countries in order to define a solid strategy regarding the characteristics of the vessels to be acquired. In addition this strategy is not static and consequently should be reviewed from time to time.

5.2 Search for the Most Economical Conditions

The most economical conditions in which a ship can be acquired, are that ones, which guarantee that a shipowner pays the lowest possible price for the vessel he needs.

The achievement of such economical conditions are determined by:

- the possibilities to acquire the vessel from the convenient ship purchasing market:
  - newbuilding market
  - second hand market
- the possibilities to obtain a suitable source of ship finance
- the possibilities to acquire the vessel at opportune time.

5.2.1. The Convenient Ship Purchasing Market

There are two main markets for the acquisition of vessels viz: the new building market and the second hand market.

It is a mistake to say that one of the two is better than the other in absolute terms. To select one of the two

markets is a matter of evaluating various angles under specific circumstances.

The most relevant factors to consider for such selection are the following:

- the availability of sound vessels on each of the markets,
- the possibilities to attain finance in each market. In some cases, the ship financing available is restricted to be used in specific places,
- the price of the vessels on both markets,
- the span of time in which the ships are required to be in operation,
- the planned employment of the ships,
- the length of time the ships are expected to be employed,
- the number of ships of the same type which are needed,
- the type of currencies in which the ships can be paid.

The combination of the above mentioned factors give origin to many alternatives which should be assessed before any decision is taken.

5.2.2. The Suitable Source of Ship Finance

Ships are financed from different sources, but rarely from the company's capital itself. This statement is even more universal when talking about developing countries.

In general developing countries face scarcity of foreign exchange, so they must find sources of financing abroad. Indeed, there are different ship finance sources available for them.
Depending upon the capability and possibilities to obtain the most suitable finance sources, on the most appropriate conditions at each particular moment, then consequent benefits from the costs may be enjoyed.

According to the UNCTAD Secretariat report, *Shipping Finance for Developing Countries*, "there is a wide variety of sources of ship finance available to developing countries but in recent years the most important sources have been various combinations of government supported export credits, international commercial bank loans and bilateral aid or government-to-government credits. Other sources including leasing arrangements, local maritime development funds and loans from development finance institutions, have also been used but to a much smaller degree." (1)

The government-supported export credits, which a large potential source of ship finance for developing countries, provide softer interest costs than commercial bank loans, especially on the present shipbuilding market conditions since they are the results of the major shipbuilding countries' policies to support their shipbuilding industries. These lower interests are, on the other hand, usually tied with respect to shipyards and sometimes also to the type of ships made available. The same phenomenon happens with respect to bilateral aid and government-to-government credits, which are often mixed with export credits. All of them represent a sound and attractive possibility from which advantage can be taken.

However, one principle should be borne in mind; it is useless to buy something just because it is cheap; it should also fit our needs.

Finally, the decision makers of shipping investments have to assess the different ship finance sources available, their characteristics and the advantages which may be obtained from each of them in each particular moment.

5.2.3. The Opportune Time

The opportune moment for the acquisition of a vessel is, when the shipowner is able to pay the lowest possible price for the vessels he wants, and when he has secured employment for her.

Generally, the above conditions do not coincide at the same time. The time of freight depression is the best time to acquire sound vessels at the lowest possible price but the worst time to secure cargo specially for those who operate vessels on free market conditions.

Therefore, each shipowner has to be aware of his own possibilities as far as securing cargo is concerned and the conditions and trends of the markets.

Shipowners who enjoy the benefits of cargo reservation, may find it very convenient to acquire sound vessels at very good price from both, the new building market and the second hand market during freight rate depression.

A point , which needs to be stressed is,that the countries , which have encouraged their fleet development

through any kind of cargo reservation, should assess, for the long run, the balance of payments impact of investing or not investing in vessels' acquisition during slump periods, before taking any decision on additional cargo reservation for the benefit of their shipowners.

5.3 Acquisition of a Vessel

An issue on which the capital costs depends very much is the way the acquisition of a vessel is carried out. It is not enough that a buyer has a clear idea of what he wants to get, but to know how to buy it as well.

No great imagination is required to understand, that in such large investments as shipping investments are, slight differences, between the original idea and the final product, would represent huge amounts of money.

Therefore, people engaged in vessels' acquisition must be familiarized not only with the characteristics of the vessels they need but also with the international practices in order to perform a successful purchase of a vessel as well as the problems related to the purchase itself.

The practices and problems for the purchase of vessels are different in each of the two relevant markets i.e. newbuilding and second hand market because of obvious reasons.

Without the intention of going into detail, the main features of the two markets to be considered in the next sections.

5.3.1. New Building Market

In this market three main actors exist viz:

- the buyer (shipowner)
- the seller (shipyard)
- the brokers.

The shipowners will use the services of the brokers depending on:

- his experience in vessel purchase
- his experience in the construction of similar ships (if he has already obtained similar ships from certain shipyards)
- his knowledge of the market
- his relations with different shipyards.

Disregarding that brokers are undoubtedly a potential source of invaluable assistance for any shipowner who intends to purchase a vessels, their services are essential, especially, if the purchaser is a newcomer in ordering new ships, and not used to newbuilding negotiations.

A typical process for the purchase of a new building ship is carried out through the following steps:

a) *Preparation of Tender Design Specifications:* The shipowner must prepare the documentation where the characteristics of the vessel he wants appears e.g. type of vessels, dimensions, operating requirements, type of engine, speed, consumption, range, number of crew, classification society by which the vessel has to be classified, national and international regulations the ship has to

fulfill, etc..

b) *Tenders:* The shipowners deliver the design specification to the comprtitive shipbuilders, with or without the assistance of brokers. The shipbuilders issue their offers.

c) *Analysis of Shipyard Offers:* The shipowners assess the offers received and select the more relevant ones according to his interests.

d) *Discussion with Shipyards:* The shipowners establish contact with the selected shipbuilders in order to define in more detail the conditions and requirements of the offers.

e) *Selection of the Shipbuilder:* Among the relevant shipbuilders, the shipowner selects the most convenient one according to his interests taking into consideration different aspects, viz:

- prices and possible financial arrengements
- specialization
- time of delivery
- quality of previous constructions
- flexibility of requirements during construction and the relation of them concerning costs
- degree of standards in equipment and systems of the ships offered (if they are very unique, spare parts may be extremely costly.)
- reliability and reputation of the shipyard according to
  - previous delay on deliveries,
  - stability of labour,

- financial state,
- political stability of the country concerned.

Indeed, this step is very relevant, since the wrong selection may cause costly consequences as for example if the shipyard goes bankrupt during the construction, or if the shipyard has a delay on the delivery of the ship, having it already committed to an important contract.

f) *Letter of Intent Signature:* In a document called letter of intent which is signed by both concerned, i.e. the shipbuilder and the shipowner, they confirm their intention to contract the construction of the vessel based on certain conditions already discussed but subject to possible variations mutually agreed upon.

The conditions usually settled down in the letter of intent are the following:

- type of ship
- system of propulsion
- deadweight
- specifications (number of hull, power of the main engine, international and national regulations to comply with, etc)
- time of delivery
- price and type of currency
- payment terms
- performance guarantee
- other conditions related to the approval of relevant governments, import and currency permits, latest date to sign the contract.

g) *Negotiation of the Terms and Conditions of the*

Contract: After having signed the letter of intent, the shipbuilder and the shipowner start to negotiate, in detail, the terms and conditions which will later become the body of the contract.

Obviously, it is one of the more important steps, since the leading conditions and terms of the relationship shipowner-shipbuilder, which arise from the negotiation, will eventually result in economic obligations for both parties.

h) *Signature of the Contract:* The signature of the contract may be considered the end of one stage and the beginning of another in the relationship of shipowner--shipbuilder. The signature itself is the evidence of the agreement of both parties to fulfill all that is contained in the contract.

Contract for the Building of a Ship

The contract for the building of a ship contains the detailed terms and conditions agreed on by both parties i.e. shipbuilder and shipowner. However, the complexity and the wide scope of the details to be agreed upon have made practice of the use of contract pro-forms as basis of the discussions. Thus, there are different standard forms adopted by individual shipbuilders and most commonly by shipbuilders' associations.

As a matter of fact the use of standard forms, which are provided by the shipbuilders, give them a more comfortable position during negotiations.

Therefore, the shipowner is the one who must be in the

more active position during the negotiation, trying to modify terms and settle conditions.

Clearly, to be able to do so, the shipowner must be as much familiarized with the clauses of the contract pro-formas as the shipbuilders are.

The shipowners have to be aware, of the fact that all details in the pro-formas have a full meaning and that they are negotiating on the grounds of other people.

The most common grouping of terms and conditions of a shipbuilding contract are under the following break-down of clauses:

- heading dimensions and particulars
- delivery
- price
- method of payment
- modifications, alterations and extras
- delay due to force majeure
- early/late delivery
- default by the purchaser
- default by the builder
- inspection
- programme/progress report
- yard number
- insurance
- loss or damage
- test trials and acceptance
- defects
- deficiency in deadweight and speed and excess in fuel or consumption
- contract to prevail

- notice
- lien
- tax and duty
- arbitration
- law
- effective date
- assignment

The analysis of each clause constitutes a very wide subject, so the comments will only be addressed to some general aspects.

At the shipbuilding stage, shipowner's representative, shipbuilder's representative, classification society's representative, government flag state's representative and sometime advisors are involved. In the contract the scope of action of each of them is established, their attributions, responsibilities as well as the exchange of plans, drawings, conrrespondence, and documents which must flow among them.

A relevant issue is, that the representative of the shipowner keeps a good record of all the modifications and any other aspect, agreed upon during the construction because it will constitute the basis for the final assessment of the price to be paid. In this regard it is advisable that everything agreed/disagreed upon, remains on the memorandum signed by representatives of the relevant parties.

The price and method of payment constitute an extremely important issue in which escalation clauses must be assessed very carefully.

To finalize, a general remark is addressed to the fact, that each single condition of the contract represents a point from which one of the parties may get advantages with respect to the other. Consequently during the construction the representative of the shipowner must analyze the possible consequences of any modification before taking any decision.

5.3.2 Second Hand Market

Unlike the newbuilding market, in the second hand market the services of sale/purchase brokers are practically used in every transaction.

The brokers play a more vital role in this market because:

- There is a greater number of potential buyers/sellers, consequently, as they have a network of information centers, they do increase the probabilities to find better options for both sellers and buyers (liason role)

- This market is more sensitive to fluctuations and therefore as they are experts, can provide up-to-date information of the prices (evaluation role)

- The transactions are carried out on a relative short time-lag, so their rapid advice is more valuable (advisor role)

- Their position concerning exchange of information, between negotiating parties, is very relevant for

possible disputes (expert witness role).

Therefore, despite of the fact that the services of sale/purchase brokers constitute an item of cost, their assistance in a second hand transaction is strongly recommended.

The sale/purchase transaction is performed through different steps in which the attention to certain details and procedures will lead to a successful operation, viz:

a) *Approach:* A seller wants to place his offer in the market through a broker. The broker spreads the brief details of the vessels all over the market, providing further information to those interested.

The potential buyers request detail information, technical data, sale prices and terms, via the brokers.

b) *Search of Relevant Information:* The potential buyer tries to obtain the seller's permission to inspect the classification records, and to study copies of the ship's plans.

The classification records are a valuable source of information for buyers, specially when they are analyzed by an expert surveyor. A knowledgeable surveyor may pick up and sometimes infer the following information from the relevant classification society records and reports: list of defects discovered and repairs recommended, performed and outstanding; classification status of the vessel; defects regularly posing problems during the ship's career; parts of the vessel's hull and machinery which may cause difficulties in the month and years to come,

conditions of class possilby outstanding, ship's trading certificates - such as safety equipment and safety radiotelegraphy- status, the probable weak-spots in the vessel's construction.

All this information should be provided for the surveyor in a clear report, giving both the current status of the vessel's classification standing, as well as a potted history of her technical career, and indication of the future reliability. (2)

When the purchaser's place is far away from the place where the classification society's records are kept or when the purchaser does not have the appropriate expertise, it is adviasable that the purchaser hires the services of a professional surveyor.

c) *Inspection:* The physical inspection of the ship may be completed before or after the purchaser has made the offer firm. The selection of one of the two alternatives will depend mainly on the market situation i.e. when there is a great demand for ships the buyer tends to make the offer firm provided that the subsequent inspection is satisfactory in order not to miss the vessel. On the contrary, when there is overtonnage, the buyers usually make the inspection first. There is also the possibility that a buyer makes the offer firm on outright basis without inspection when he already knows the ship.

For the physical inspection of a ship, buyers will again need to utilise the services of their own, or a hired surveyor to thoroughly inspect the vessel on their behalf. The surveyor should be equipped with the classification society records and reports when conducting this

inspection. The information will very likely enable him to pin point and thoroughly inspect potentially defective areas of the hull and machinery, or to ensure that previous repairs are standing up to trading conditions. (3)

It is usual for a seller to insist that any inspection take place afloat, without interfering with the ship's normal trading activities in order to avoid both expensive and time consuming operations such as dry-docking, cleaning of tankers and pump-rooms. Usually these non-inspected areas are included in a subsequent Memorandum of Agreement, so as to be thoroughly investigated upon eventual handover.

Commonly the sale of the ship includes all spare parts. Thus, the surveyor, should in addition prepare an inventory of them as a protective action in the buyer's interest.

Having finalized the inspection, the surveyor should submit a report to the buyers containing the following information: a description of the vessel and conditions found; classification survey and class position; International Trading Certificate Status; Records from the log books of bunker consumption and performance of the vessel at sea; photos of the vessel and remarkable areas; comments and recommendations.

d) *Sale and Purchase Negotiations:* At this stage the potential buyer has already got an idea of the ship's conditions, of her qualities and shortcomings. Based on this information, he is in a position to go ahead with the negotiations. The negotiations are performed

through offers and counter-offers between seller and buyer, hopefully reaching an agreement on the main terms. "Agreement on main terms, although indicating a decision to sell on the part of the vendor and to purchase on the part of the buyer, remain *subject to details* until much incidental but important matter has been agreed upon, and incorporated into a Memorandum of Agreement covering the transaction." (4)

Although a Memorandum of Agreement can be drawn up in detail from any particular set of negotiations, it is usually framed around the published text of a document called The Norwegian Shipbrokers Association Memorandum of Agreement, and codenamed SALEFORM (5) or any other printed forms.

Any of these forms contain all the terms and conditions upon which the transaction will be carried out as well as the clauses which bind both parties to follow during the negotiation otherwise there is exposure to economic implications. (For further details see SALEFORM Annex IV)

e) *Delivery and Handover:* Having finalized the negotiations, the next step is the delivery of the vessel by the seller and the handover of it to the buyer.

The performance of such delivery and handover is a complicated procedure in which exchange of documents, and funds must take effect. Generally the transfer of ownership involves a change of flag of registration. "A smooth transfer of ownership of a vessel can only be efficiently achieved if all parties concerned have made thorough and proper preparation in readiness for the event." (6)

The sellers' task at this stage are the following:

- full instructions to shipmaster and crew and information to all persons concerned in the company's office, flag administration, underwriters, banks, etc.,
- preparation of de-registration of vessel with flag authorities,
- to provide power of attorney to employees involved with a view to carry out de-registration rapidly,
- to prepare minutes of a meeting of board of directors of the ship-owing corporation in which they confirm their assent to the sale and to the sale-terms,
- to prepare a bill of sale. This document as well as any document for the buyers should be notarized and legalized.
- to redeem any mortgage on the ship either by paying the outstanding principal sum plus interests, bank expenses/fees or by transferring the obligation to the buyer -with the consequent reducton on the price agreed upon- with the approval of the Mortgagees.

The buyer's tasks:

- to arrange with port agent, everything concerning the attendance of the vessel on his behalf,
- to have crew ready to take the vessel at time of handover,
- to prepare insurance of the vessel from time of delivery,
- to prepare registration of the ship.

The handover of the ship has been finalized from the sel-

ler's point of view when:

- He has received the appropriate funds in his bank account, or at least the secure promise of funds by way of an acceptable Bank Guarantee, or an irrevocable Letter of Credit.
- He has informed his master by an expeditious and previously arranged method to deliver the vessel to her new master.

- The seller's master has delivered the vessel, drawn up a certificate to this effect, which is signed by both parties.
- He has finalized his de-registration arrangements.

On the other hand, the handover of the vessel has been concluded from the buyer's point of view when:

- He has fulfilled his payment obligations and received the relevant documents.
- The buyer's master has confirmed his receipt of the various ship trading certificates, and a copy of the transfer certificate.
- The possible mortgage, he has agreed to undertake, has been transferred to him and registered at the buyer's consulate.
- He has registered the vessel in the new flag state.
- The new master and crew have the total control of the vessel and get ready to sail.
- The vessel is covered by the insurance.

An expert commercial and technical approach to the relevant ship purchasing markets, i.e. newbuilding and second hand markets, is imperative to obtain value for money.

NOTES AND REFERENCES

(1) UNCTAD, "Merchant Fleet Development, Ship Financing for developing countries", *Report by UNCTAD Secretariat, TD/B/C.4/299* ; Geneva, December 1985; p.29 .

(2) Packard, W. V. , "Sale and Purchase", *Fairplay Publications* ; London, 1981 ; pp. 53 - 54 .

(3) Ibid. , p. 56.

(4) Ibid. , p. 58.

(5) Ibid. , p. 58.

(6) Ibid. , p. 67.

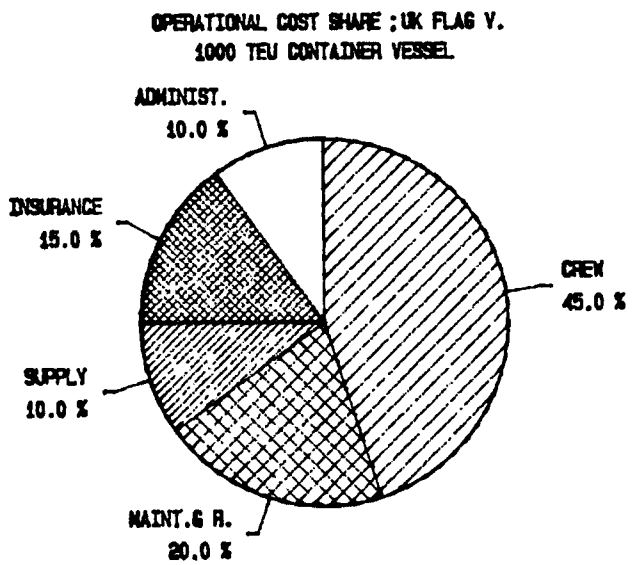
Chrzanowsky, I. , "An Introduction to Shipping Economics" *Fairplay Publications* ; London, 1985.

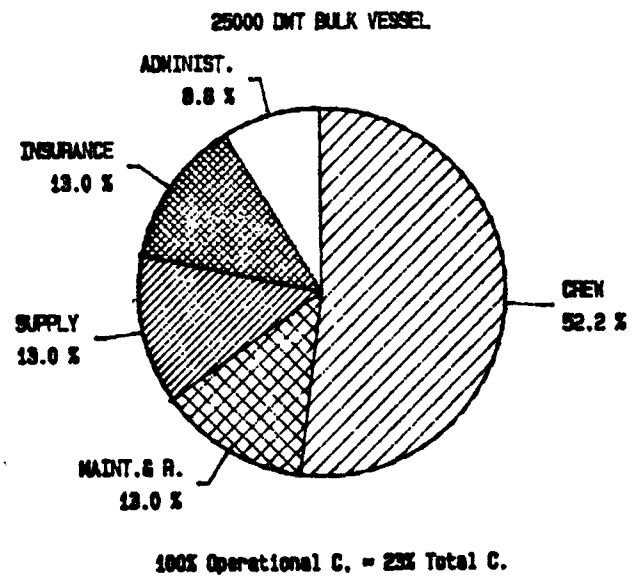
Couper, A. D. , "Ships and Cargo -Economics and Competition" , *Lecture, Marine Affair Course, International Centre for Ocean Development* ; WMU, 1986 ; Vol. 1, pp. 219 - 229.

CHAPTER VI

OPERATIONAL COST

Under operational costs are grouped: the cost incurred in manning, maintaining, repairing, supplying and administering the vessels. To obtain an approximate idea of operational costs apportioment, see Fig. 6.1





The operational costs do not vary accordingly, neither does the amount of cargo carried nor the distance run for the vessels. That is the reason why in voyage cost accounting, they are classified together with capital costs as fixed amounts.

Unlike capital costs, which are intrinsically invariable for particular vessels, the level of the operational costs depends on the shipowner's policies and the quality of the ship management to a certain extent. Therefore, they are an important area for cost result improvement.

The intention of this chapter is to highlight the factors to be considered when dealing with operational costs.

6.1. Crew Costs

The crew cost is an item which has become more and more relevant through the time and is nowadays an essential cause of competitiveness.

Behind crew issues, there are many cost factors involved. Some of them are directly reflected on crew cost items such as wages, overtime bonuses and social security, while there are others, which may not be directly related to such crew cost items but which have great influence on the overall performance of the vessel.

Therefore in this point, the approach to crew matters will be carried out from the point of view of the crew as a general impacting factor on cost.

The tremendous effect the crew may have on the ship's

operation is clear when one considers that it is the crew that moves the ship, may cause accidents or damages, may inefficiently operate the equipment, may maintain the ship poorly, may excessively waste paint and other supplies, may not take proper care of the cargo from which claims may arise, among other things.

Therefore, managers must be extremely aware of the very many factors they should consider when dealing with crew matters.

6.1.1 Company's Crew Policy

In general terms a company's crew policy is stated upon a mixture of binding restraints, economic considerations and external conditions. They are as follows:

- binding restraints,
- design of ships,
- ship availability in the market,
- cost of manpower,
- minimum degree of automation advisable.

Binding Restraints: The socio-economic and political conditions vary from country to country. This fact determines in the first instances, and many other details as well, the shipping company's policy regarding crew matters. Thus, a shipping company in a particular country has a set of national legislation and rules to follow.

The national legislation may bind them to engage national citizens on board national ships or let the choice be open to the decision of the company.

The national legislation may also obligate them to take a minimum number of crew, above the international requirements because the existence of unemployment problems. In other cases the same pressure may come from unions or worker-federations.

International regulations are also binding factors in regard to number and qualification of crew.

The Design of the Vessels: The trend, in shipbuilding construction, as far as automation is concerned, has to be considered, or in other words, what the development achieved in shipbuilding construction may provide as a minimum number of crew as well as what could be expected in this regard for the future.

Ship Availability in the Market: It could be the case, that there is an interest in the acquisition of a vessel which is not highly automated because of the availability of cheap labour, but the ship market is just unable to provide this vessel or at least, to provide it at the expected price.

Cost of the Manpower Available: The situation may be that the cost of labour is high, and then, the most advisable policy is to seek a minimum number of crew on highly automated vessels.

On the other hand, in situations of abundant cheap labour resources, the company's policy may be to acquire non-highly automated vessels.

Minimum Degree of Automation Advisable: Even when a

cheap labour resource exists, there is a minimum degree of automation advisable. This is the minimum degree of automation which does not affect the turn around of the ship.

It means that, there are many operations on board e.g. opening/closing of hatches, which have to be carried out obligatory through automated systems, otherwise the ship may be delayed in its normal operations, so the charge of work on board and consequently, the number of crew needed will be constrained, anyhow, by a certain level of automation.

As a general remark, it should be emphasized that since the crew policy is a general outline of considerations within an specific environment, and since this environment is always changing, then such a policy has to be flexible enough to arrive at the best solution under specific circumstances.

6.1.2 Number of Crew and Their Skills

This topic may be subdivided into two viz: number and skills on board and secondly, number of crew in general, i.e. the establishment of floating staff.

NUMBER AND SKILLS ON BOARD:

The number of crew on board has to be seen from different angles, and upon the particular conditions of the ship concerned. First of all, there is a general policy of the company, as stated, which will provide the scope of alternatives to be selected.

Bearing such policy in mind,an assessment of the work charge to be done in the particular ship which includes both operational, and maintenance requirements, should be carried out.

The operational requirements differ from ship to ship depending on the trading routes in which the ship is engaged, the degree of automation of the particular vessel and the flexibility of the ship's staff. Thus, the issue is to find the minimum number of crew members who can safely carry out all tasks, in the particular ship's condition, at the climax operational moments.

On the other hand, the work charge, from a maintenance point of view, depends mainly on the trade in which the ship is engaged, the quality of the equipment, paints, and the maintenance policy of the company. Then the assessment should be directed to the factors analyzed in point 3.2 (Maintenance and Repair Costs), in order to decide who will execute such maintenance i.e. whether the crew or other people as for example riding crews and/or shore personnel.

"Another factor in the manning formula is the skills requirements. It is not enough to just calculate how many man-hours are required to maintain and operate the ship and decide whether they should be done by the crew or others. It is necessary to know how many man hours of which type of skill are required, and then assess the composition-of the crew." (1)

The skills needed on board a vessel depend to a great extent on the complexity of the vessel itself. Thus whe-

re there are sophisticated and highly automated systems, there is a necessity of having more qualified personnel and probably a smaller number of them. The composition of the crew, has then, to be decided by firstly observing international and national requirements, secondly by considering the skills needed on board and thirdly by considering the work system selected.

There are very flexible work systems which allow the ratings of a traditional crew to work in other departments in work compatible with their normal department work and officers with dual roles i.e. their official role and the assisting role of lesser importance elsewhere, either in their own departments or in others. In such systems the composition of the crew will be influenced by the fact that it needs crew members with wider skills and qualifications.

THE ESTABLISHMENT OF FLOATING STAFF;

"It is the total number of sea staff required to man all the ships in the company's fleet, and will include seafarers at sea and ashore for any purpose. It is usually based on the manning scales of all the ships plus allowances for leave, sickness, studies for certificates, training, and overlap when changing crews. These will be in accordance with the conditions of service of the company and may vary from rank to rank or rating depending upon the leave and study requirements and even the likelihood of sickness amongst senior staff. (2)

6.1.3 Manning the Vessels with Appropriately Qualified Crews

High degrees of qualifications of the people who are manning the vessel give rise to keep the cost at the lowest levels in many areas. So special attention should be given to this issue.

The possibilities to obtain qualified crews will depend, in the first instances, on the degree of freedom, a shipowner has, to choose them amongst different sources of manpower as well as the extend of funds he has available for this purpose. Thus, a shipowner, who has no restrictions to hire crews from elsewhere and enough funds available, may get first class crew.

Now, disregarding the above, and considering that the shipowner is able to get his crew from "x" man power source, he has three issues to deal with i.e. recruitment, study and training.

RECRUITMENT;

It is the process to get the people within the company.

The first step is to define the requirements of entrance. They should be settled down according to the skills and crew composition needed and also taking into consideration the availability of people in each type of occupation.

Having established the requirements of entrance, the crew department should find the applicants for the jobs.

The applicants may come because advertisement has been made in newspapers, magazines, radio or whatever means, or in other cases, because the people of the crew department have been in touch with centralised employment organizations where both employers and employees can be brought together.

The selection, is then, the most time-consuming step in the recruitment process. It takes a lot of efforts, and its successful results will depend to a great extent on how much experience the people in charge possess in this matter.

The techniques applied in the selection do not differ from any other industry. The people in charge will devote more efforts to the selection when it is related to long term employment and key positions e.g. masters, ship engineers.

The selection of sea staff has the particularity, -specially when they have to choose people different from those of the company's *establishment*, to be carried out on a 'ship must sail' situation. In that case the crew departament considerations should be adressed to assess what their position, and that of the owners, would be in the event of an accident as a result of the appointment.

STUDY:

A shipowner may have to deal with the studies of seafarers and officers under different circumstances viz:

- when a shipowner is bound to employ national citi-

zens, he should contact a marine college, marine academy or any educational maritime institution in order to provide them with his experience as regard to what he considers should be included or strengthened in the syllabus of the study. It will obviously benefit him because higher qualified people will man his vessels.

- When a shipowner has an interest in his long term employees making progress in their careers, he may consider it convenient to pay them for the duration of the study he is interested in.
- When national regulations bind, shipowners to provide study leave to his sea staff in order to get certain certificates of competency. In this case, the situation regarding who pays for the time of "non-earning" -whether the shipowner or the employee or both- varies from country to country.

TRAINING:

From the shipowner's point of view, training has again different degrees of involvement and interest depending upon:

- whether or not the trainees are the obligatory source of manpower, he has to deal with.
- whether the training is supported by himself, the industry as a whole or the government.
- whether it is commencement training or optional training.
- whether the training is for officers, future officers, ratings or future ratings.

The combination of the different alternatives presented originates diverse situations in which a shipowner may be.

In any of the possible cases, the shipowner has to assess what to do according to his interest in the light of the above that training is an essential condition to acquire skills which, at the end, contribute to the reduction of costs through better technical operation of equipment, improvement in maintenance and repairs, reduction of risks of accidents, among others.

6.1.4 Condition of Services

The relationship of shipowners and crew members has to be clearly defined for the benefit of both. The conditions, on which this relation-ship is based, are named conditions of services.

They reflect on one hand the policy of the shipowner regarding the quality of crew he wishes to get, and the funds he has availalble for this purpose and on the other hand on the minimum requirements set by the governments, unions or joint bodies representing both owners and unions.

The conditions of services are usually written down in the contract or attached to it in printed form or any other document issued by the shipowner.

The conditions of services cover items such as, rates of payments, leave scales, overtime, bonuses, working condition supplements, study leave, subsistence allowance

when travelling to and from ships and on leave, payment for additional qualifications, insurance and pensions as well as in some cases payments associated with productivity achievements.

As a matter of fact, they represent the greatest part of what is named, from the accounting point of view, crew costs and consequently their detailed control should be an important point of the shipowner's attention.

6.1.5 Keeping Ships Manned

Keeping ships manned is a fundamental responsibility of any crew department. They must guarantee that every single vessel is manned according to her crew composition requirements. An unsuccessful accomplishment of this task may bring costly delays when the vessel has to sail.

A constant knowledge of the manning status of each ship is the primary condition to achieve positive results in this regard. Therefore, the crew department must be the only one in charge to decide when and where any change of the complement of a crew should be made.

The crew departament, having the thorough control of the crew movement requirements, can plan their appointments and changes well in advance.

There is also a necessity to carry out cew changes in an economical and practical way. "Changes should be made with the maximum number of sea staff at the same time to obtain beneficial discounts of travel costs and reduce repetition of effort in making such arrangements. They

should also be made as close as possible to the place from which crew are engaged to minimise costs." (3)

On the other hand, the need of ensuring continuity in the vessel operation usually requires a phased change-over, particularly of senior officers. Therefore any arrangements for crew changes should be planned from both points of view i.e. at minimum costs and ensuring continuity in the vessel operation.

6.1.6 Motivation of Crew

"Ships are only as good as the people who serve on them." (4)

This precise statement encloses two main areas of the shipowner's attention. On one hand the matters related to quality and selection of crew complement, which have already been discussed and on the other hand, the behaviour and performance of the crew.

A good performance of a crew can be achieved by means of compulsory measures, strict discipline, impositions, threats, and many other attitudes usually found on board vessels in the old days.

Nowadays such management style may also bring the required results as far as having a safe ship is concerned, i.e. a ship well maintained according to schedule and within "budgets". Nevertheless, with regard to crew stability, the results will probably be a disaster and by inference the cost of recruitment. In addition, the crew complement will contribute to improve the ship with no

ideas, no extra efforts.

On the other hand, a shipowner, who by observing the needs of human beings, manages to motivate his crew, will surely find better crew performance and stability.

The degree of motivation of any crew member depends mainly on the degree of satisfaction of his "needs". The needs of a particular crew have to be considered in the light of the particular socio-economic and political conditions of the environment where he lives.

Thus, in each particular country the factors, which stimulate the interest of people, may have different impacting consequences so unique solutions are not adviseable.

Bearing in mind the fact pointed out in the preceding paragraph, then it is time to present in general, what motivates a crew member in the execution of his duties.

Good Conditions of Services: A crew member, having good conditions of service, is motivated to remain in the company because they allow him to satisfy his reasonable material expectations. Even more so, when the conditions of services establish that part of his payment is conditioned to attain a certain level of productivity or a target, then he will also be motivated to perform his obligations well. Obviously when the conditions of services are less than that expected, or when efforts are made to deprive the crew of what they expect, the sure result will be, dissatisfaction and poor performance.

Security of Employment: Specially in times of unemployment, the security of employment is a motivating force

for any crew member to appropriately execute his duties.

When the security of employment is practically unlimited, even when the lack of responsibility and the unappro-- priate performance of a crew member are not causes of getting him fired, then such security of employment becomes a deterring factor.

Good Working Environment: Many studies and practices have shown how important it is to have an appropriate working environment to achieve a higher rate of productivity.

The simple fact to be on board a ship, far from families and friends within a limited area and other inherent characteristics of life at sea, are more than enough to illustrate the stress conditions in which seamen live.

Therefore, any action to diminish or compensate such hard conditions of work and life will surely lead to a better crew performance.

Improvements in working conditions can be obtained not only through investment in accomodation, better communication systems, entertainment, and other comforts but also through harmony, comprehension and respectful relations among all crew members.

Job Satisfaction: It comes from a number of human "needs" of which the prime needs are:

- the need to have the role and status clearly defined and to have recognition of them from associates.
- the need for career advancement opportunities.

- the need for fulfilment at work. (5)

"Perhaps one of the advantages of the organization of sea staff in the past, compared with other industries, was that every one knew his role and status and that of everyone else in the ship. They also knew the qualifications certain officers and ratings had to have before they could hold a particular position. Within the sea staff organization they also knew their career prospects.

Nowadays, the traditional working system has changed and thus, the role of each crew member is not so clear. Therefore, for shipping companies operating "new" systems of work with new staff roles, position descriptions are essential.

The need of personal fulfilment at work is at the heart of motivating people towards peak performances. (6)

Personal fulfilment at work arise in crew members when the following conditions are present:

- The work on board is carried out with enthusiasm and dedication specially by masters, chief officers and senior sea staff.
- Each crew member feels his role is considered necessary for the rest of the crew and specially for his seniors.
- There is a reasonable and steep delegation of authority and responsibility from the top to the bottom through the line of command within the scope of keeping the control.
- The supervision of work is performed through counselling and discussing rather than just checking that

someone is working.

- Every crew member can express his ideas of and points of view on the problems existing in the vessel and they are then taken into consideration.
- Personal efforts, experience and particular skills are openly recognized.

The above mentioned conditions bring a greater personal involvement of all the staff, in decisions affecting their work. Such conditions require an appropriate frame within which they can be achieved.

A suitable frame is what is nowadays named "shipboard management team". It implies in essence a new style in work relationships onboard ships within the total crew complement.

"This method of running, controlling and operating a vessel does bring all parts of the ship together, to work to the best of the whole crew's ability.

"The size of this management team should not be too large and unwieldy and, in the main, should consist of the master, the chief engineer and the heads of the departments." (7)

The team meets regularly to discuss the progress of plans and to seek ways of achieving future results by distribution of labour and/or inter-departmental assistance co-operation. Similar meetings are held to discuss social problems, operational matters and safety issues existing on board. These should be complemented with short meetings with the staff involved in relevant matters, if they have not already been co-opted to the management

meeting.

Meetings should constitute an instrument of interpersonal communication and not a formal procedure. They should be limited in frequency and length of time. There should always be an agenda, to ensure that all important matters are discussed.

Finally, in the meeting the view of all participants should be anlysed and, when advisable, other crew members should be invited, to express their opinions of related matters.

CREW COST AND RELATED ASPECT CAN REPRESENT CRITICAL EFFICIENCY FACTORS; THEREFORE, THEY REQUIRE SPECIAL ATENTION.

6.2 Maintenance and Repair Costs

6.2.1 Identification of Maintenance and Repair Requirements

Maintenance and repair activities are not an end by themselves. They exist because there is a need of keeping certain equipment, installations, the ship or whatever means in suitable conditions to meet what is expected from them.

Therefore, the first item to identify is what is expected of each particular ship. Despite of the fact that ships are built to carry goods, they have diverse sized, technology, ages, employment expectations, work regimes, among many other particularities which make them different as regards what is required in order to consider them in suitable conditions. So not all ships should be seen through the same prism as far as maintenance and repair requirements are concerned.

Likewise it is harmful in economic terms not to provide the required level of maintenance and repair to a ship. It is also economic nonsense to over-spend on her. What is the sense in carrying out a great and costly substitution of equipment in a ship, when it is close to being scrapped? Therefore, it is first of all, a matter of really identifying what is required.

Usually, when certain items, which do not necessarily stop the ship from a technical point of view (e.g. saving appliances), are not included in maintenance and repair plans due to forgetfulness, the ship may be detained in a

port as a consequence of non-compliance with the requirements of the certificates. Consequently, special care must be taken within maintenance and repair plans to include all possible items which may stop the ship in one way or another.

Maintenance and repair plans should be based on the following aspects:

- the classification society's requirements
- the requirements of relevant certificates
- previous technical inspection reports
- the ship's requisitions
- the company's long term plans for the ship
- analysis of the relevant information provided by the monitoring system implemented.

Scientific monitoring and diagnostic systems permit the detection of maintenance requirements of equipment and machineries without unnecessary time consuming and costly overhauls.

Although the implementation of such systems give rise to considerable expenses as a result of the sophisticated instruments, which are needed, they may actually become a cost reduction factor. Maintenance and diagnostic systems can also improve fuel economy, because they permit more accurate determination of the opportune moment to carry out the maintenance of auxilliary plants and main engine.

6.2.2. Planned Maintenance

The objective of planned maintenance is to maximize the ship's availability extending her life as long as required at lowest possible cost.

Appropriate planned maintenance minimizes the amount of unscheduled or breakdown maintenance with relevant consiquential effects, viz:

- Reliability of equipment during operation and emergency situations.
- Optimum employment of the potential crew, i.e. high productivity and flexibility to be used on any alternative jobs during bad weather conditions.
- Reduction of losses because of 'off hire' situations.

Further advantages of planned maintenance can be as follows:

- Maintenance of adequate stocks of spare parts
- Clear identification of the requirements for drydocking plans.
- Routine overhaul of equipment when due.
- No areas of the vessel or equipment to be neglected or overlooked.
- Saving in fuel and lubricanting oils through greater efficiency of the plant and machinery.
- Reduction in the replacement and repair cost.

6.2.3 Role of the Human Factors in Maintenance and Repair

The people engaged directly or indirectly in maintenance and repairs are crew, shore repair teams from both the company and outside, shiprepair yards personnel, technical superintendents, surveyors from classification societies, experts and consultants.

Each of them has a role to play on the over all objective of keeping the ship in sound technical conditions. Sometimes their roles are overlapping or in other words, a repair or maintenance job can be carried out either by the crew or by the shore personnel, or by the personnel of repair yards. The selection of whom should execute the job, is then a point of assessment, from which differences in cost arise.

The decision of assigning a repair or maintenance job to one or another source of manpower is not only a matter of cost but also a matter of several factors to be considered. These factors are as follows:

- availibility of each source of manpower at the place required
- their respective qualifications and skills vs. the complexity of the job to carry out
- the potentiality of them to perform the repair or maintenance job within a convenient period of time
- the real possibilities to do the job on specific working conditions (i.e. climatic conditions)
- the normal regime of exploitation the ship is exposed to
- the risk involved in giving the job to one or another

source according to the timing and quality desired.

An essential complement, for a rational allocation of a repair or maintenance job to one or another source of manpower, is the degree of freedom that the decisionmaker has for the choice.

In developing countries sometimes, trying to reduce the outflow of foreign exchange, regulations regarding salaries and pre-decided places of repairs are issued.In general such regulations may bring positive results but in particular circumstances, could constitute economic nonsense. So any regulations should be flexible enough to permit modifications when it is advisable.

Besides the technical job which may be performed by one or another source of manpower, there are operational requirements which necessarily have to be executed by the crew.

No one should doubt the strong relationship existing between the way a piece of equipment is operated, and its life expectation. The probability of break down increase with an unapropriate operation of equipment. Consequently managers should consider how important it is to have highly qualified crews, crews familiarized with the equipment and systems on board and most important of all, motivated crews. The more which is achieved in this regard, the greater will the contribution of the crew in technical cost reduction be.

There is another actor who is unfortunately forgotten sometimes in the technical environment but he always appears and plays his role. He is the classification

society representative. A ship may be delayed, if it has not been in touch with him during the execution of certain repair and maintenance jobs.

Managers should be aware of the fact, that it is not enough that a ship must be repaired according to certain parameeters and procedures given by the classification society but that its representative has to follow and certify such repairs.

Moreover, managers should not only look at a classification society representative as the person, who, by not issuing a certificate, may stop the ship but also as the person who can provide relevant and valuable information of the technical conditions of the ship. From him advice may be obtained to solve complex technical problems, as well as, reports of the most common defficiencies found on the company's vessels.

Furthermore regarding classification society representatives, managers should carefully plan the appointment of them, since each of their visits represent expenses. Sometimes a classification society representative is summoned several times in a short time lag to certify different things, which could be certified in just one visit with an appropriate planification.

Another very important consideration is the selection of technical managers. They are the persons on whom the responsibility of bringing all efforts together lies as regards planification, organization, regulation and control of the technical issues of the vessels. Their skills, attitudes, knowledge, and commitment to the company's aims, will greatly determine the achievment of

the desired results. Therefore special care should be given to such selection.

6.2.4 Requirements of Material Resources for Maintenance and Repairs

When dealing with material resources, within the scope of maintenance and repair; spare parts, instruments, tools, equipment and materials have to be considered.

A very important issue is to carefully define which materials, spare parts and tools should always be on board as a guarantee for uninterrupted ship operation and a requisite for achieving productivity during maintenance and repairs. A man can spend a lot of time doing a job because simply and uncostly tool is not available.

A suitable spare part inventory control system is an important requisite for the maintenance. It allows timely and appropriate allocation of spare parts and reduction of unnecessary stocks. Spare parts inventory control system and planned maintenance system should be compatible to each other.

The quality of the material resources also has consequences on the costs. Acquiring cheap material resources is not synonymous with cost reduction. In the medium or long run, such acquisition will probably be more expensive.

Further comments are devoted to this topic under "supply cost".

6.2.5 Drydocking

To bring a ship into drydock is a major event involving considerable costs. During dry dock time a ship is out of service and consequently out of earning. A ship sailing towards and from a shipyard without cargo is also incurring expenses which are not compensated. The reduction of these periods, i.e. drydocking and sailing to an from a shipyard, are important factores which influence ship economy.

Reduction of drydock time can be seen from two perspectives, i.e. the time spent in drydock itself and how often the drydock is required.

The reduction of the time in drydock may be achieved through well planned repairs and proper selection of shipyard.

The determination of the intervals between drydocking is attainable through the factors which cause the need to send a ship to drydock. These factors are mainly classsification society surveys and hull coating requirements according with hull-maintenancae policy of the company.

Periodical Classification Society's surveyors of the bottom platting, tailshaft withdraw, rudder clearances and different underwater fittings are pre-requisites to keep a vessel in Class. The intervals between two consecutive drydocking surveys used to be about two years. Presently, Classification Societies have agreed lengthening the intervals of drydocking up to five years through Harmonization of the Class and Statutory Surveys

System. However an in-water survey must be carried out at the middle of the five year period.

Hull coating is essential to maintain optimum speed performance and fuel consumption efficiency. Previously, ships used to be drydocked more often than presently in order to remove causes of frictional drag, i.e. roughness due to fouling and marine growth. Special hull coating systems have reduced the frecuency of drydocking. Advances in paint technology are continuous and the advent of self-polishing paints and underwater paints are in the long line of developments to reduce drydocking requirements.

The decision regarding the specific moment when a ship should go to a repairyard is a matter of balance between the following conditions:

- The most convenient moment from the technical manager's point of view, taking into account the possible consequence of any delay.
- The most convenient moment from the ship operator's point of view, considering the different levels of demand in each period of the year and the distance between the ship and the shipyard in each particular moment.

6.2.6 Selection of Shipyard

"The best place to carry out repairs is obviously that where the work can be done best, in the fastest time and at the lowest price." (8)

Although this is undoubtfully true, the issue is not as simple as that. There are, in any case, costs associated with bringing the vessel to the ideal place and from there to her area of employment. Such cost has to be included as part of the assessment in the selection of shipyards.

In addition, the time it takes to move the vessel toward the shipyard and from there to the place of employment must also be considered in terms of consequences for her future employment commitment.

The selection of ship repair yards must also be decided considering the following aspects:

- Quality of the repair yards available.
- The time each of them require to perform the repair.
- Tariffs and financial conditions.
- Reputation.
- Technological potential of the ship yards vs. complexity of the work to be carried out.
- Previous experiences on other similar vessels.
- Geographical location.
- Facilities offered to perform parallel work with ship's staff

Other factors to consider in the selection of shipyards are related to the commercial and financial side of the problem.

When repair-packages of a number of ships are negotiated, there is a possibility to bargain tariff reductions or favourable financing conditions.

The type of currency in which the repairs must be paid is another factor to assess. Hence in certain cases, governmental treaties make payments in non-hard currencies possible. Such conditions could constitute attractive advantages for the balance of payments, if there are no considerable differences in quality and time of repair.

6.3 Supply Costs

Under this title a wide variety of items are grouped. Consumable items such as bunkers, oil and victuals are included as well as semi-consumable ones as for example paint, spare parts, tools, linen and cooking utensils.

Some of them have a great impact on the whole cost of the ship as for instance spare parts and bunkers, while other are of little significance.

There are also differences regarding how much time in advance they must be ordered i.e. some spare parts always have to be on board such as those required by the classification society while others could be ordered at the time when they are needed.

From the various differences mentioned above, but first of all from the impact on the costs, a supply purchase strategy should be defined.

6.3.1 Supply Purchase Strategy

A supply purchase strategy must be drawn considering not only the differences mentioned above but also certain essential factors such as the following:

- the cost of having resources immobilized,
- the risk of losses,
- the economy of scale,
- the cost of delivery.

THE COST OF HAVING RESOURCES IMMOBILIZED;

Everything has a value associated to it. At the same time, money has a value which increases with time ie the time value of the money.

Combining both concepts, then it is clear that the earlier the supply is bought before it is used, the stronger will the effect of such immobilization of money be on the cost.

Therefore as far as time is concerned, the best purchase is the one which is carried out at the moment when the supply is going to be consumed.

However the other factors involved make the real proccess different, and in fact they act in oppossite ways.

THE RISK OF LOSS;

There is always a risk of loss when the ship is out of operation for a number of days due to the lack of an essential spare part at the time of the breakdown. So from this point of view it is better to have large stocks on board.

THE ECONOMY OF SCALE;

It is a fact that the more articles acquired at one time, the cheaper will each of them be, so from this point of view large amounts of supplies should be acquired at one time.

COST OF DELIVERY;

When a supply is urgently needed on board, generally the cost associated not only with the price of acquisition but also with the price of delivery (i.e. after sales services) is higher than when such a supply is ordered well in advance.

In conclusion, a supply/purchase strategy should provide a guide as how to deal with each type of supply with regard to:

- Whether or not each particular suppply must always be on board.
- The level of stocks of each item.
- The choice of which item should be bought in bulk.

6.3.2 Supply Purchase Function

To have a suitable supply purchase strategy is irrelevant for the cost reduction objective, if it is not supported by a sound performance.

To carry out an appropriate purchase of supplies, it is first of all required, to have a good knowledge of the various and specialized markets.

People in charge of the purchase must be updated regarding prices, availability of items in different places, quality, cost of transportation and deliveries or in other words they should be experts in this matters.

It is impossible to hope that anybody on board may have such wide knowledge of the supply markets. Therefore managers should decided whether to give the responsibili-

ty of selecting the source of the supplies to the ship's staff or to specialized staff ashore (purchaser officers).

At present, there is a tendency to reduce the role of the ship's staff in the purchase function because the advantages which can be obtained when the negotiations are carried out by people who have the control of greater demands and a better knowledge of the various markets. This tendency could bring negative results, if it is implemented without a speedy and efficient information system between ships and shore . Well defined procedures and clear definitions of responsibilities are essential to get the desired results.

Disregarding the degree of centralization which may exist in the supply purchase function, there are some items which are always bought by the staff ashore e.g. paints, lubricants,etc. When dealing with such negotiations, the purchase officers should look for cost reductions by means of an active and aggressive attitude.

They should request price reductions when negotiating large amounts of supplies to be delivered either at one time or according to schedule. They should never order any supplies before requesting conditions and prices.

They may look for advantageous conditions of purchase as for example, differed payments whereby a supplier agrees to send certain stocks to the buyer's place to be paid for, at the time of consumption. Indeed, this kind of deal is applied where there is an important demand far way from the location of the suppliers.
In general terms, the purchase officers should not only

have a good technical background but also a commercial one.

6.3.3 Control of Supplies

Another important aspect to be considered for the avoidance of extra costs is related to the control of supplies. Control of supplies means quality control and physical control.

QUALITY CONTROL;

In a contract or any document for the acquisition of supplies, specific conditions are settled down regarding quality, time of delivery, among others, for which the buyer agrees to pay a certain sum. However if the buyer does not control that the supplies are delivered as per contract conditions, he may be paying for something with less quality.

Therefore, a control system over the delivery of supplies should exist. In this regard, the ship's staff should sign the bills after having checked that the items described correspond with what they have received. The shore purchase staff should then compare that the conditions in the bills presented by the suppliers correspond with contract conditions before authorizing any payment.

Furthermore, it is important to have a detailed control over the bills which have already been paid in order to avoid more than one payment for the same supply.

Fuel supply requires special quality control procedures

due to its high cost. This item is analyzed under "FUEL COSTS"

PHYSICAL CONTROL;

The control of supplies is also a matter of physical identification and localization of stocks.

A record of supplies received and consumed must be established on board ships. In the case of spare parts proper arrangements for localization and identification of each spare part should be done.

Unfortunately, sometimes as a consequence of not having an appropriate control system, a spare part is requested under urgent conditions (i.e. by air, at high cost, and perhaps even with the ship waiting) then later, by accident, the identical spare is found on board.

An appropriate control of stocks must also be implemented in warehouses which some shipping companies have as a logistic back up of their ships.

Sometimes, there is a wrong tendency to have huge amounts of stocks ashore, but not any appropriate records of input and output of spare parts. This situation is usually complemented with poor codification and physical localization systems.

In such conditions, items of existing supplies may not be delivered to the vessel at due time . All this represents a double negative effect on the cost, i.e. firstly, because the ship could be delayed and secondly, because this supply without use is money immobilized for nothing.

6.4 Insurance Cost

Insurance is a very specialized and complex subject. The purpose of this paper is not to analyse the details of the insurance matters but just to present the main principles on which the cost of covering a ship against possible losses are settled down and to emphasize the most common problems arising as a consequence of missunderstandings and lack of proper actions when dealing with insurance.

"Insurance in general provides protection to shipowners against physical loss or damage of their ships, against liability to third parties and against loss of interruption of earning." (9)

There are different schemes from which shipowners may get such protection. Nevertheless, to simplify the explanation, all of them will be reduced to two main schemes, i.e. one which is provided for profit oriented parties and another which is provided for non-profit oriented parties.

In general, shipowners find protection against physical loss or damage to their ships with profit oriented parties through contracts of indemnity -hull and machinery contracts, war risk contracts- . The loss of interruption of earning is also covered by profit oriented parties.

On the other hand, the protection against liability to third parties are commonly covered by Protection and Indemnity associations, i.e. P & I Clubs.

6.4.1 Hull and Machinery Insurance

This kind of insurance is arranged by insurance brokers on behalf of the shipowners with underwriters. The underwriters agree to indemnify the possible losses or damages to the ships and the shipowners agree to pay a premium for protection.

The magnitude of the premium, which is a matter of negotiation, is settled considering several factors viz:

- The relationship demand-supply prevailing on the insurance market at a particular moment. It has to be considered that underwriters are selling services (to cover risks) and shipowners are buying such services.
- The quality of the underwriters. Reliable and highly reputed underwriters are costly. However they are usually ready to accept facts provided by a shipowner and to promptly settle legitimate claims.
- The risk connected with the intrinsic characteristic of the ship itself as for example: value, age, size, type of ship.
- The risk related to the employment of the ship e.g. trading routes, type of cargo.
- The ownership and management records, which despite the fact that it has been listed at last is a very relevant factor.

Indeed, shipowners can influence few of the above mentioned factors. However the extent of their influence can be considerable in some cases.

Shipowners may reduce the insurance cost selecting low

quality underwriters. However it is a risky option and not an advisable one.

They may have economies regarding the level of premium, undertaking themselves part of the risk by means of reducing the amount assured below the agreed value as well as increasing the deductibles. There are disadvantages when increasing the deductible amount because minor and more frequent damages are not covered but,on the other hand, by not having frequent claims their records remain clean.

"The principle factor over which shipowners have control is the provision of good management and through this, well-trained and proficient crews. The shipowners are assessed in this by their overall managment record i.e. a record of good and claim-free operation and this will be reflected in the underwriters rates and conditions. A good record is an important negotiating point and will usually have the effect of reducing or at least stabilising the owners' insurance costs." (10)

6.4.2 P & I Club

In general, P & I clubs provide protection against liability to third parties.

Shipowners must be members of the club to get such protection. Indeed the shipowners are not protected in general but with respect to liabilities of the ships which have been accepted by the club as 'entered ships'.

A ship holds the conditions of entered ship through an

insurance contract between the member and the association.

In the insurance contract appears: "the terms and conditions upon which a ship is accepted for entry indluding those relating to the nature and extent of the risks covered and the contributions payable by the member." (11)

The contribution of a member is a fixed premium which is calculated by applying the club's "call" rates to the GRT of the ship. Because P & I clubs are non-profit oriented organizations, their charges have to cover the overall claims of the club members plus the expenses of running the club. Consequently the Club's call rates will be determined by the extent of the club's monetary needs.

Likewise, "the rates of a shipowner may be increased to reflect its particular loss record i.e. a loss ratio of premiums to claims, averaged over the previous record period." (12)

Therefore, from a shipowner's point of view, the cost of P & I Club insurance is influenced due to two main factors viz:

- The general call rate level of the club, which is out of his control.
- The increased rates applicable to him as a consequence of his poor record.

Although it is true, that some accidents are out of the control of the shipowners and consequently they should not be considered as the cause of a poor record, it is

also a fact, that many accidents are caused by poor managment performance in the sense of not having well-trained crews and officers who are not familiarized with maritime legislation, among other problems.

In addition to the factors already presented, there are other causes, which despite of the fact that they are not directly connected with the magnitude of the premiums, do influence them. Such causes are the following:

- *Misunderstandings about what Insurance is:* It is not rare to hear expressions, such as, "It does not matter, this is covered by the insurance", coming from crews and even from shore staff. Such expressions show that the people involved, and many times committed to cost reduction, do not take care in the avoidance of certain accidents, lossess or whatever, just because the simple "reason" that insurers will indemnify later. Nothing can be more wrong.
  The insurers may certainly cover the losses but not thoroughly, there is a deductible sum to be assumed by the assured himself. In addition, the more claims, the poorer record the shipowner will have and consequently the higher premiums he will have to pay in the future.
  So it is essential that not only the people dealing with insurance issues but everybody in a shipping company is aware of what insurance is.

- *Unsuitable documentation to settle claims:* On occassions, legitimate claims are not carried out only because the ship's staff did not provide the relevant evidence nor took the proper actions at the right time.

- *Poor working relationship between the insurance departament and the ship management department:* As a result of this situation, it is not ensured that possible risks are avoided, nor that underwriters are promptly put on notice of possible claims nor that legitimate claims under policies are properly progressed.

- *Insufficient use of P & I Club possibilities:* The P & I Club services are usually requested in cases of incidents, however they are not often consulted in their capacity of advisory service.

- *Lack of initiative:* A matter of insurance cost reduction failure is to take a passive position with respect to the insurance market, accepting every condition without discussion. Sometimes the bargain power to possess a large fleet is not even used.

- *Excessive number of intermediaries:* There are occasions, specially when there is a lack of proper expertise within the company, when the insurance arrangements are made with local insurance companies which only act as intermediaries, without undertaking any risks themselves.

- *Inadequate support to insurance activities:* In those companies, where there is no real understanding of the relevancy of insurance activities, there is a tendency to poorly back them up, consequently no real experts are appointed to deal with these issues, insuffient material resources are destined for the activity, no training programmes are planned for either shore personnel or ship officers.

6.5 Administrative Costs

'Administrative costs' are the expenses incurred in the management and administration of a shipping company as a whole.

Whenever a shipping company deals only with their own ships -i.e. when no other activities constitute a source of incomes- the administrative costs should be charged to the ships themselves due to the fact that they are incurred in the process of giving 'support' to the ships from ashore.

If other activities different from those related to the company's vessels are carried out, then the costs incurred by their performance should not be allocated to them.

A usual break down of administrative costs includes:

- ashore staff costs,
- travel costs,
- occupancy costs,
- communications costs,
- printing and stationery costs,
- depreciation of equipment,
- amortisation of property.

The level of such costs differ from company to company owing to a variety of factors. To a certain extent, some of them are out of the control of the company due to external conditions, e.g. standard of living of the company headquarters and prices of articles / services

required.

However, actions can be taken to guarantee that the administrative costs remain at the lowest possible level without affecting the quality of the administration.

6.5.1 Ashore Staff Cost

The number of people employed in the company is a factor over which control can be excercised.

The *functions* carried out in the company itself determine to a certain extent the requeriments of personnel. A shipowner may delegate some of the administrative functions to outsiders. Thus when a shipowner has only one ship or a few, he may find it more convenient to entrust the managment of his vessel or vessels to someone else (another shipping organization) and pay for the services. This solution may not be advisable for every management function but for selected ones, for example, the practice of leaving all crew arrangements to an efficient agency, specially when the ships are manned by foreign crews.

In any case, the shipowner has to be responsible for the costs associated with the performance of such functions through payments to outsiders.

Therefore his decision is a matter of assessing the most convenient choice of solution according to his interests, i.e. whether to have his own organization or someone else carry out the functions, in the light of the fact that he is entrusting functions of short, medium and long term

implications to someone else.

The *Structure and Organization* of the company also influenes the number of employees. Companies with an appropriate structure, where everyone has clearly defined obligations and responsiblities usually have no problems of overstaffing and consequent extra costs. Therefore a correct approach to "Organization and Management Theory", as a leading pattern to define the structure of the company, the assignment of functions and the definition of responsibilities is also a requisite to keep the number of employees at an appropriate level, and to receive maximum results from them.

Shipping companies which have been structured by following certain "models" and not by a rational analysis, as suggested in the "Theory of Organization and Management", are those companies, where the overlapping of functions, overstaffing, no definition of responsibilities, repetition of information records or lacking in information among other problems are the causes of an inefficient and costly management.

The quality of ships' staff is another factor which alters the number of personnel ashore in a certain way. Thus, where the ships' staff are not highly qualified, more shore staff are required to supervise their activities. (13)

Finally, a great reduction of shore staff can be achieved through the use of *modern data processing means*, IF they are integrated into a well designed *data processing system.*

The word "IF" has been intentionally stressed in the last paragraph to highlight the fact that modern means of data processing are useless or at least highly underutilised if corresponding new procedures, working systems and distribution of functions are not adopted.

In addition to the advantage of reducing the personnel, a well designed data processing system feeds the decision making proccess with more accurate and opportune information, resulting in a more effective managment.

Recruitment and Training are two other important factors to keep shore staff costs at a reasonable level. The problems related to these issue do not differ from those arisen in any other organization. So just to mention a few words is enough.

Recruitment is a process where time, resources and efforts are spent. Such a process should guarantee that appropriately qualified personnel eventually become members of the company's staff. The costs associated with the recruitment process will not ever be excessively high if the selected applicant after the period of adaptation remains at the company's service. Thus, the best way to minimize recruitment costs is by satisfying the new employee's needs during the adaptation period,i.e. the needs of being technically and socially recognized by his or her seniors and collegues and the needs of learning new norms and styles of works, in summary the needs of becoming a real part of the organization.

A shipowner who economically support the trainning and study courses of his employees has made a sound investment for his organization if:

- The syllabus of the relevant courses corresponds with the present or future requirements of the company.
- The present or future duties of the people who have been selected are associated with the syllabus of the courses.
- The trainees are aware, well in advance, that the knowledge they acquire will be appreciated in the company and will constitute a subject of assessment in their personal performance.

6.5.2 Travel and Communication Costs

Travel costs are mainly associated with the need of being in touch with ships. Such a need can not be eliminated because physical control is an important managment factor. However, modern means of communication, existing nowadays, make it possible to reduce the number of visits to ships. So the decision is to a certain extent a matter of balance between travel costs and costs of communication systems on both vessels and land. Considering in addition the advantages that suitable communication means provide to the decision making process, i.e. opportune information.

6.5.3 Occupancy and Amortization Costs

The costs of occupancy and amortization are very much related to external factors such as the level of rent, the price of services, equipment rentals, office maintenance, and the price of property. However, they may also be reduced through an appropriate selection of the compa-

ny's headquarters. It means, that nowadays with the existing communication facilities it is no longer necessary to keep the whole company in the same place. This part of the company which does not necessarily have to be in the center of a large city, because of commercial purposes, can be moved to place where all these costs would be much lower.

Reduction of shore staff already analysed brings consequent reduction of the occupancy and amortisation cost.

NOTES AND REFERENCES

(1) Downard, J. M. , "Managing Ships" ; *Fairplay Publications* ; London, 1984 ; pp. 120 - 121.

(2) Ibid. , p. 59.

(3) Ibid. , p. 63.

(4) Ibid. , p. 128.

(5) Ibid. , p. 125.

(6) Ibid. , p. 126.

(7) "Taking the Team on Board", *Loyd's Ship Manager*; June, 1984.

(8) Donward, J, M. , "Running Coasts" , *Fairplays Publication* ; London, 1982.

(9) Ibid. , p. 71.

(10) Ibid. , p. 74.

(11) The North of England P & I Association L.T.D. , *Rules 1984 - 85* ; Newcastle, 1984 ; p. 12.

(12) Donward, J, M. , "Running Costs", *Fairplay Publications* ; London, 1982, p. 76.

(13) Ibid. , pp. 81 - 82.

Anthony, R.N. , Dearden, J. , Bedford, N. M. ,"Management Control Systems" , *Fifth Edition* ; USA, 1984.

Houssin, P. , *Shipping Management Hand-out*; WMU.

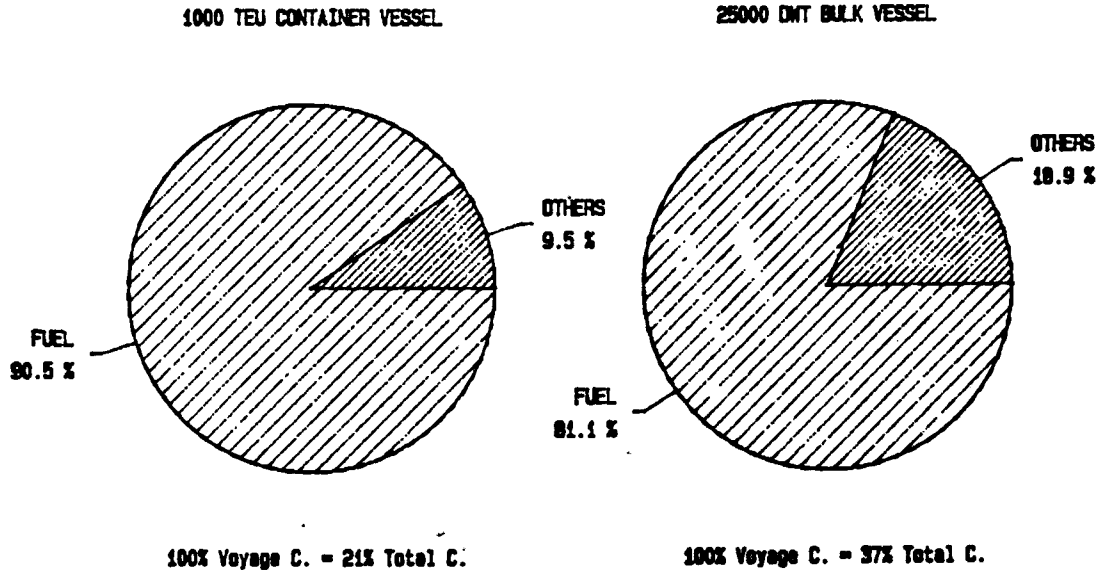
CHAPTER VII

VOYAGE COSTS

The term "voyage costs" is given to those costs which are intrinsically related to the particular circumstances of each voyage.

A general break down of voyage costs includes the following items:fuel cost; cargo cost; port and canal charges. To give an approximate idea of the importance of fuel amongst them the above figure is presented.

VOYAGE COSTS SHARE ; UK FLAG V.



In general terms, voyage costs vary from voyage to voyage. This is the reason why they are also known as "variable costs". Nevertheless in particular situations- where the vessels are in liner services - fuel costs as well as port and canal dues do not vary from voyage to voyage. In such cases, they are considered as fixed costs by accountants.

Disregarding the particularities, the level of voyage costs is determined by specific factors of each voyage. The analysis of such factors is the purpose of this chap- ter.

7.1 Fuel Costs

In spite of the fact that the recent dramatic fall in crude oil prices and the corresponding significant reduc- tion in marine fuel costs have brought easier times to ship operators, this should not be a reason for them to turn their backs on fuel saving.

Still under present conditions, fuel costs rank an impor- tant position among the vessel's costs and therefore, they should be kept as an item of special consideration.

The influencing factors on fuel-economy costs may be roughly summarized as follows:

- price,
- quality of bunkers,
- constructive characteristics of engine and equipment,
- operational conditions on board,
- constructive characteristics and actual conditions,

of the propulsion and hull systems,
- operational regime of the vessel,
- the purchasing function.

7.1.1 Quality of Bunker

The quality of bunkers has a direct influence on the efficiency of the propulsion system and correspondingly on the costs. At the same time, bunkers of low quality also have an effect on other cost items as a consequence of having many more frequent breakdowns, many more spare part substitution requirements and a much shorter life time of equipment than before.

Traditionally ships requested the fuel based only on viscosity. Nowadays continuing such practices would cause tremendous losses because refineries all over the world have improved their refining techniques, concentrating their economies on the production of light products at higher prices. As a result the quality of the residual fuel, which is usually the source of the shipping industry, has deteriorated.

To ensure fuel of appropriate quality on board is therefore a relevant matter. There are different actions to take in this regard, viz:

- to order fuel according to a complete set of quality specifications as for example viscosity, density, water content, metal content, specific energy, etc. ;
- to test the quality of the bunkers using the services of reliable and independent laboratories;
- to check the quality of the bunker on board through

fuel-bunker analysing methods;
- to request a quality specification guarantee from the suppliers if possible;
- to separate the bunkers already on board from the new delivery;
- to have a good record of different qualities of fuel and its location on board.

To get the desired quality of the bunker is, on the other hand, a commercial technique and consequently the conditions listed below should be considered as essential:

- to identify the different suppliers all over the world regarding prices, quality of fuel and reliability of their respective 'quality guarantees';
- to involve the supply brokers in the fuel quality control, when possible;
- to ensure that the ship's staff does not sign any fuel quality bills if they can not control such quality;
- to report to owners as soon as problems arise on board that may stem from inferior bunkers.

7.1.2 Constructive Characteristics of Engine and Auxiliary Equipment

Improvement in the design of more efficient engines is a cause of important fuel economy.

Attention to type and specification of the engine should be given when a ship purchase is carried out.

The relevancy of having an efficient engine is so great

that even in cases of existing ships, shipowners have changed heavy fuel-consuming engines for more economical ones.

The shipping industry has also received a number o new mechanical handling incorporates pieces of equipment to ensure that the fuel is injected to the engine in a way suitable for the requirements of the fuel injection system and to prepare the fuel for combustion. Such equipment includes: purifiers, clarifiers, blenders, homogenisers, filters and viscosimeters/heaters.

The advantages of the new technologies available should be carefully assessed before going into any investment.

7.1.3 Operational Conditions on Board

The efficiency of an engine is strongly related to the way it is run.

Appropriate monitoring systems allow the identification of deviations on working parameters of the engine and equipment. Such deviation may be caused by either gradual wear, poor fuel quality, or poor maintenance. Disregarding the cause, the appropriate maintenance must be executed to recover normal working conditions as a way of fuel economy achievement.

Other important factors in order to get the maximum output from the engine are the previous treatement and care that the fuel should receive before consumption. Such factors are:

"- To avoid mixing with bunkers lifted from different sources, unless it has been found out that the two

fuels are compatible.

- To avoid salt water contamination of ship's tanks.
- To adequately heat the fuel.
- To treat and preheat fuel effectively.
- To provide suitable additives if required." (1)

Special contribution to fuel economy can be achieved through the establishment of fuel saving programs. Both ship staff and shore personnel have to be committed to such programs. The ship board shore management team is a suitable vehicle to implement them.

7.1.4 Constructive Characteristics and Actual Conditions of Propulsion Systems

An area of great importance for fuel economy and performance is related to the design and conditions of the ship's propulsion system which includes both hull and propeller.

Considerations of different resistant factors acting in the hull shape have been taken into account for the ship's design. Similar attention has been devoted to design and to select an appropriate designed propeller.

The conditions of the propulsion system should be maintained as close as possible to the design conditions. The undesirable effects of fouling and growth on the hull plate considerably reduce the efficiency of the propulsion system. Therefore the application of an appropriate coating system to the hull plate, the timing of drydocking, and propeller maintenance schedules are essential in fuel economy.

7.1.5 Operational Regime of the Vessel

In fuel economy, the saving that optimal navigation routes and economical speeds can bring, should not be forgotten.

As far as fuel consumption is concerned, optimal navigation routes can not be identified as the shortest routes but the routes in which the ship's fuel consumption is minimized. The effects of weather conditions on the actual speed of a ship are known. Bad weather may cause considerable increases in the navigation time and consequently affect fuel consumption. This must be considered by the master when planning the ship's course.

Nowadays, advisory services for weather conditions recommending ships' courses are available in many areas of the world. Radio facsimiles in ships' bridges instaneously provide weather maps which constitute invaluable informaiton in experienced hands, in order to decide ships' courses.

Economical speed is nothing else but the speed that a ship should use considering both the fuel consumption regime and the operational requirements.
Each ship has its own curve of consumption vs power at the shaft; there is a point in this curve where the minimum consumption for each unit of power produced is obtained. To keep the engine working at such a regime is a way to achieve fuel economy.

On the other hand, such fuel economy can represent a thorough economy if the operational requirements are not affected more than the economy acheived from fuel saving.

An example is the case of speedy container carriers, built before the oil crisis. They have a great fuel consumption at high speed. Therefore, when the fuel price went up, their operators started to run them at a reduced speed because the economy this represented despite the corresponding increase in the duration of the voyage.

7.1.6 The Purchasing Function

The supply of bunkers is available in many places all over the world. A good knowledge of the marine bunker market makes it possible to take advantages of competitive prices and high quality fuel.

The use of updated world wide information of the conditions of the bunker suppliers is a relevant tool in order to purchase bunkers.

On the other hand, the purchase officers and ship managers must keep a constant interaction in order to plan well in advance convenient places for bunker supplies considering the ships' needs and the market conditions.

A purchaser always has the option to bargain for rebates or discounts from suppliers if he makes the proposition to become a constant and important cosumer. This strategy is specially suitable for liners who wish to stabilize their fuel costs for a period.

The fuel purchase function requires officers with not only sound commercial knowledge but with a technical understanding of what quality of fuel means and what has to be done to ensure the desired quality.

7.2 Cargo Costs

These costs are associated with loading/discharging operations as well as with the canvassing of cargo in the particular case of liners.

The total sum of cargo costs is variable. It depends, from the shipowners' point of view, on the following factors.

- terms of transportation agreed i.e either FIO or liner terms or any derivation of them,
- amount and structure of the cargo loaded/discharged,
- the stevedore's tariff levels in particular ports,
- commissions.

7.2.1. Terms of Transportation

A carrier, having contracted the carriage of goods on Free-In-and-Out terms, does not have any charges related to the cargo.

On the other hand, a carrier having contracted the carriage of goods on liner terms, on Free-In-Liner terms will be thoroughly or partially liable for cargo charges. "The cargo charges, a carrier usually is responsable for, are the handling cost only while handing storage and delivery cost are in any case paid usually by consignees except in the case, he request for over time." (2)

It is an advisable practice that shipowners make sure that their masters, officers and shore personnel are aware of the charges he is responsible for, in order to

avoid costly situations as for example:
Landing charge, which are the expenses incurred in the movement of the goods beyond the ship's tackle, are usually paid by the consignee in straight times. In overtime, such charges have to be borne by the party which requested the overtime. In some cases, because of a lack of knowledge or attention, the shipping companies pay overtime landing charges for which they are not liable, since overtime was not requested by the ship.

In general terms, the practice of being unaware of the terms and conditions on which the cargo movement is agreed, leads to artificial increases on the costs.

In other cases, the losses arise, for opposite reasons. There are situations, where the ship may save valuable time, if overtime were requested, but because the terms of transportation express that "the consignee is responsible for it", then no decision is taken.

To sum up, masters and shore personnel must know the terms in which the carriage of goods has been contracted and in addition they should consider that such terms are as much of a binding restraint as the extent of the economic consequences they imply.

7.2.2. Amount and Structure of the Cargo

The amount of the cargo handled defines a charge of work to be done, thus the larger the amount of cargo is, the higher the stevedoring charges will be.

How the amount of cargo may be a bargain factor on the tariff is analysed in the next point.

The structure of the cargo creates differences on the handling cost. The costs related to bulk cargoes are lower than those associated to general cargoes. This happens to general cargoes as well, where unitised cargoes, as for example in containers or palletts, have lower handling cost than general break cargoes.

So from the shipowner's point of view, his advantages are given according to how his vessel is in relation to the cargo structure. Thus for instance, a vessel with wider hatches and speedier gears will have a quicker turnaround than other vessels of the same tonnage and type.

7.2.3.The Stevedores' Tariff Levels at Particular Ports

The tariff level is a commercial factor determined by the stevedores. It is composed for a level of costs and a margin of profits within a specific competitive environment.

Thus, a shipowner offering attractive conditions as regards an important amount of cargo and/or suitable ships, may expect tariff reductions from stevedoring companies if there is competition within the port or within neighboruing ports.

In some cases, the bargain may be made to get preferrential operational conditions as for example berth preference and cargo handling rate increases.

7.2.4. Freight Commissions

Freight commissions are items of cargo costs when the carrier is operating the vessel in a liner service. The level of such commission is an agreed percentage of the freight that the carrier pays to a selected liner agent for his services.

The services rendered by a liner agent may differ from case to case but usually cover the total interest of a liner within a port or geographical area. "Liner agents represent the shipowner in many different ways. Liner agents will have contact with eventual shippers and forwarding agents within the area, they procure advertising about departures and arrivals, and normally they will do all the work for the line otherwise carried out by a port agent" (3), they make the booking upon a previously agreed basis.

The freight commissions may totally be different levels of costs for the same amount and type of cargo depending on the percentage agreed between the shipowner and the agent. However it is advisable to notice that the top quality agent may require a higher percentage but may also bring higher revenues to the shipowner for having secured more cargo to him.

Finally, shipowners should closely follow performance of the agent by means of market appraisals, market forecasts and market share reports in order to be sure that he is getting the maximum possible benefits from the services he is paying for.

7.3 Port Charge Costs

Port charge costs may be broken down into the following items:

- harbour dues,
- wharf dues,
- light dues,
- pilotage and towage costs.

These costs are associated with the specific voyages the ship is engaged in. The amount varies from port to port and generally it is fixed by predetermined tariffs issued by the authorities of the respective countries or regions where the ports are located.

It means that from the shipping companies' point of view, there are practically very little they can do in order to get the costs down.

However, in the case a shipowner has certain control over a considerable volume of cargo in such a way that he may decide to indistinctly use any port of a region, then this shipowner is in a position to bargain for a reduction of port charges with the competent authority.

Indeed, this possibility exists in developing countries whose fleets and international cargo trade are thoroughly controlled by the state.

For instance, in a contract of purchase on FOB basis the importer nominates the vessel and the port of loading. Now if all the importers of a certain country are bound to nominate a specific port for all cargoes coming from a

defined hinterland and use the national shipping line, then, such line has control over a great volume of cargo. Such control enables the shipping line to negotiate port charge reductions with competing and geographically closely located ports.

NOTES AND REFERENCES

(1) Holbrook, R.P.,"Fuel Analysis:The current necessity", *Marine Propulsion International* ; England, April 1986 ; p. 10.

(2) O'Louhlin, C. , "The Economics of Sea Transport", *Pergamon Press* ; Great Britain, 1967 ; p. 117.

(3) Ihre, R. , Gorton, L. , Sandervarn, A. , "Shipbroking and Chartering Practice", *Lloyds* ; London, 1980 ; p. 35.

"Advise to shipwners on Use of bunker"* , *Marine Propulsion International* ; England, April 1986.

* Article based in presentation of Meyer, T. A., from INTERTANKO and Royle, D. from Petroleum Services at the Eight International Marine Propulsion Conference; London, March , 1986.

CHAPTER VIII

SYNOPSIS AND CONCLUSIONS

FIRST PART

Summing up all the subjects presented in the first part, the main points dealt with are as follows;

1- An essential part of the production process is the process of cargo carriage, which has a cost associated with it.

2- The reduction of cost in maritime transport is an economical development factor.

3- International trade and maritime transport form an inseparable unit. They actively interact with each other.

4- The history of goods movement distribution by sea has been to a greater extent a consequence of an unequal control of the economic resources of the world and of the world trade. The nations, which were historically deprived to control their economic resources, were incapacited to develop their economies and consequently were in no position to become maritime nations.

5- The different social, economical and political constraints which have taken place during the present century have contributed in some way or other to change in the

world fleet share structure.

- The relatively limited ownership of the world merchant fleet started spreading out.
- The developing countries share in the world merchant fleet started from practically nothing at the beginning of this century to 16,5% by the year 1985.

6- A variety of motivations have given rise to developing countries investment in shipping activities viz:

- new source of foreign exchange to the balance of payments;
- saving of foreign exchange to the balance of payment;
- diversification of industry;
- expansion of national trades;
- regional integration;
- strengthen the position with respect to conference;
- economic independence;
- national security.

7- A number of critical conditions are usually found in developing countries when they decide to invest in shipping. These conditions may have different emphasis in each particular country in correspondence with the degree of development already achieved. Such conditions are as under:

- scarcity of capital;
- shortage of cash flow;
- inadequate infracstructure;
- lack of skilled people on shore;
- lack of seafarers;
- lack of training facilities;
- lack of maritime tradition;

- imbalance trades.

8- The critical conditions in which developing countries establish their fleets, represent a real handicap to compete successfully in free market conditions. Consequently developing countries have taken defensive measures to protect their infant fleets. Different practices of cargo reservation are the most common defensive methods.

9- Permanent and irrational protective policies may lead to inefficiency of the national fleet as a result of lack of motivation. To correlate the personal interests of the people engaged in shipping with the achievement of efficiency oriented targets may constitute a motivating force.

10- Non-economic oriented criteria to establish national merchant fleet may, in particular circumstances, have even greater priority than the others.

11- The economic criteria to develop a national merchant fleet must be based on the achievment of a positive impact that it will create on the balance of payments, either directly from the fleet itself or indirectly from the effect of such fleet in other economic sector of the country. Before making any investment, the possibilities to obtain such condition should be assessed in an economic feasibility study.

12- From economic viewpoint, to obtain a positive impact on the balance of payments is not a sufficient criteria to invest in shipping, specially for those countries where there is a scarcity of foreign exchange. The criteria

of appropriate allocation of resources has also to be justified.

13- If the cost per ton carried by the national fleet is higher than the freight rate which would be charged by foreign flag vessels to carry the same cargo, then that national fleet constitutes a burden to the economy of the country.

14- The reduction of cost/ton should be the only way to make a national fleet profitable. It enables a national fleet to become a potential source of foreign exchange earner for the country.

15- For developing countries to obtain maximum benefits to their balance of payments, by having their own national fleet it is imperative that such fleet be operated so as to minimize the transport cost in foreign exchange for every ton carried. As they are employed in the national trades, their main benefit is not additional foreign currencies but foreign currencies saving.

16- To reduce the cost in foreign exchange per ton carried, the total costs of the shipping company must be reduced, as many services to shipping as economically feasible, must be provided locally, and the operation of the fleet must be rationalized to make optimal use of the available tonnage.

SECOND PART

Following is a summary of the second part of this paper where it was examined the factors which influence the costs of a shipping company.

1- **CAPITAL COSTS:** The capital costs reflect the price of the vessel itself and the interest over ship finance. They are fixed cost and are unavoidable after the ship has been acquired. The level they reach is not only a consequence of uncontrollable factors, (i.e the markets), but also the result of how appropriatly the process of investment has been carried out.

A suitable process of investment includes the following requirements:

- *Definition of the optimum vessel*. Sound knowledge of the requirements/trends of the trade, the trend of the world shipping industry, and of the specific conditions existing in the country are the essential prerequisites to define the optimum characteristics of the vessels to be acquired.
- *Search for the most economical Conditions*. The identification of the befitting (apropriado) ship acquisition market, the suitable source of ship finance and oppor-- tune time enables to minimise cost.
- *Appropriate executive skills at the ship acquisition stage*. An expert commercial and technical approach to the relevant ship purchasing markets, i.e newbuildind and second hand markets, is imperative to obtain value for money.

2- **OPERATIONAL COSTS:** They are fixed once vessels are trading. They include the costs incurred in manning, maintaining, repairing, supplying and administring the vessels. To a certain extent, their levels depend on the shipowners' policy and the quality of ship managment.

Influencing factors on each of the cost items included under operational costs may be summarised as follows:

i- *Crew costs*: They include wages, overtime, social security, bonusses, training, study among other costs directly related with the crew. They largely vary with many factors, namely:

- type of ship and degree of automation introduced;
- cost of different source of man power which can be employed;
- the minimum manning scale as prescribed by flag state legislation, international regulations and worker unions;
- number of crew members and composition needed according to operational and maintenance requirements as well as working system adopted;
- the total complement of floating staff of an organization, vis-a-vis those engaged on active service on board;
- the shipowners' position as regard with study and training;
- the condition of services;
- the decision in signing on and signing off procedures with respect to the number of crew and regards to place.

The quality and motivation of crews are other fac-

tors which do not change the crew costs themselves but which do greatly influence on the overall performance of the vessels.

ii-*Maintenance and Repair Costs*: They include the costs incurred in keeping the ships in appropriate phsyical conditions to meet what it is expected from them, viz: drydocking,routine surveying, maintenance and repair personnel from ashore, instruments, tools, equipment. Spare parts and materials costs are sometimes accounted under supply costs but intrinsically related with maintenance and repair costs. The factors that create impact on maintenance and repair cost are listed below:

- the inherent characteristics related with the nature of employment of each particular ship, i.e. regime of work, trading routes and type of cargo. They are non controllable factors as far as technical managers are concerned;
- degree of effictivness and efficiency in the identification of maintenance and repaire requirement. Advanced monitoring and diagnostic systems are invaluable assets;
- the appropriate allocation of maintenance and repair targets to alternative source of manpower, i.e crew, shore staff, extra crew members, shipyard and ship repairers, are casue of cost reduction;
- quality of ship personnel;
- implementation of suitable planned maintenance;
- reduction of drydock time;
- selection of shipyard;

- spare part inventory control.

iii- *Supply Costs*: These include a variety of semi-consumable and consumable items, for instance, paint, spare parts, linen, cooking utensils, victuallings and, oil-lubricants. Bunker is also a consumable supply but due to its great impact on the total costs and its variable condition is usually segregated as an independent item of analysis. The factors influencing supply costs are as follows:

- existing prices on the markets;
- the time lag in which the supplies are immobilized as a result of compulsory standards and/or shipowners' decisions (level of stocks);
- the effects of the economy of scale in the acquisition of supplies;
- the conditions in which the supplies are requested, i.e either urgent conditions or well planned in advance;
- the commercial and technical experience of the purchasing officer;
- the degree of centralization or decentralization in the execution of the supply/purchase function
- the effectivness in the quality control of supplies;
- the effectivness in the physical control of supplies;
- the importance of place of supply.

iv- *Insurance Costs*: The level of insurance costs depend upon some controllable and some non-controllable factors as far as shipowners are concerned. Non-controllable factors are as under:

- relationship demand supply depending upon the prevailing insurance market condition at particular moment;
- inherent characteristics of the vessels themselves
- the level of risk related with trading routes, and types of cargo;
- the general "call rate" level of P & I Clubs.

Controllable factors can be summarized as below:

- the option to select underwritters of different quality;
- the shipowner and managment records which finally depend of the quality of manning;
- the account of risks undertaken by the shipowners themselves, i.e the level of the deductibles.

Other causes not directly connected with the magnitute of the premiums but leaving indirect impact on the insurance costs, are as follows:

- mis-concept of insurance mechanism;
- tendency to be over protected;
- poor working relationship between insurance and ship managment departaments;
- underutilisation of P & I Club's services;
- excessive use of intermediaries;
- inadequate support to insurance activities within the company.

v-*Administrative Costs*: These are the expenses incurred in the management and administration of a shipping company as a whole. They include staff cost, travel costs, occupancy costs, communication costs, printing and stationary costs, depreciation of equipments and amortization of property. The level of administrative costs are determined by a number of factors. Those which are under direct control of the shipowner are as follows:

- selection of the shipping company's location;
- number of employees which is a consequence of the following : functions carried out in the company itself. Organization and structure of the company. Use of advanced data processing system. The quality of the ships' staff to a certain extent;
- effectivness of the recruitment and training process;
- travels.

Reduction in the number of company's staff will also bring reduction on occupancy and amortization costs. Partial or total delelgation of the administrative functions to outsiders may decrease administrative cost per ship.

3- **VOYAGE COSTS:** These include fuel cost cargo cost, port charges and canal dues. They vary from voyage to voyage. Influencing factors on each voyage cost item are summarized as follows:

i- *Fuel Costs*: Still under present conditions, fuel

costs rank high on an important position among vessel's total costs. The factors influencing the fuel costs are as below:

- price;
- quality of bunkers;
- constructive characteristics of engine and equipment;
- operational conditions on board;
- constructive characteristics and actual conditions of propulsion system;
- application of weather routing systems;
- implementation of economical speed;
- efficiency in the performance of the purchase function.

ii-*Cargo Costs*: These are the cost associated to the loading/discharging operations and in certain cases to the canvassing of cargo. The level of cargo costs, depends on the following factors:

- terms of transportation agreed i.e. whether FIO or liner term or any derivation of them;
- amount and structure of the cargo loaded/discharged;
- stevedores' tariff level at particular ports;
- level of freight commissions.

Despite the fact they are basically out of shipowners' action, economies can be achieved or extra cost avoided through:

- awareness of relevant ship and shore personnel;

about terms of transportation agreed;
- suitable characteristic of the vessels with respect to the cargo structure;
- tariff bargain when substantial volume of cargo are under shipowner's control.

iii- *Port Charge Costs*: These include harbour, wharf and light dues, as well as pilotage and towage cost. They are beyond shipowners' control. Where the shipowners could control larger volume of cargo with the neighboring port, they may have the possibility of bargaining the reduction of port tariff.

As can be seen from this study that when the people involved in maritime transport activies, begin to give more importance to the cost-aspects of shipping, and are able to identify and tackle the cost related problems, then they can improve the overall efficiency of their organization. This in turn will give substantial benefit to their country's balance of payment.

If this paper has conveyed to some extent, the message of cost awarness amongst some readers, and have managed to consolidate the views of others, then the objectives of this paper have been achieved.

BIBLIOGRAPHY

"Advise to shipowners on Use of bunker"* , *Marine Propulsion International* ; England, April 1986.

* Article based in presentation of Meyer, T. A., from INTERTANKO and Royle, D. from Petroleum Services at the Eight International Marine Propulsion Conference; London, March , 1986.

Anthony, R.N. , Dearden, J. , Bedford, N. M. ,"Management Control Systems" , *Fifth Edition* ; USA, 1984.

Chrzanowsky, I. , "An Introduction to Shipping Economics" *Fairplay Publications* ; London, 1985.

Conference on Ship Costs at UWIST, *Maritime Policy and Management* ; January/March 1984.

Couper, A.D. , "Ships and Cargo - Economic and Competition", *Lecture, Marine Affair Course, International Centre for Ocean Development* ; WMU, 1986.

Downard, J. M. , "Managing Ships" , *Fairplay Publications* ; London, 1984.

Donward, J, M. , "Running Coasts" , *Fairplays Publication* ; London, 1982.

Frankel, E.G. , "Impact of Cargo Sharing and other Restrictive Shipping Shipping Practices" ; Massachusetts Institute of Technology, April 1985.

Goss, R.O., "Investment in Shipping and the Balance of Payments : A case - study of Import Substituting Policy", *Studies in Maritime Economics* ; Cambridge University Press, 1976.

Holbrook, R.P.,"Fuel Analysis:The current necessity", *Marine Propulsion International*; England, April 1986.

Houssin, P. , *Shipping Management Hand-out*; WMU.

Ihre, R. , Gorton, L. , Sandervarn, A. , "Shipbroking and Chartering Practice", *Lloyds* ; London, 1980.

Institute of Shipping Economics and Logistics of Bremen, *Shipping Statistics* ; January 1986.

Monsef, A. A. , *Shipping Economics Hand-out* ; WMU.

O'Louhlin, C. , "The Economics of Sea Transport", *Pergamon Press* ; Great Britain, 1967.

Packard, W. V. , "Sale and Purchase", *Fairplay Publications* ; London, 1981.

Rigmor, T. and Brodefords, R. , "The Commercial History of Shipping" ; Gothenburg, Sweden, 1983.

Shneerson, D., "The Profitability of Investment in Shipping - The Balance of Payments Criterion" , *Journal of Transport Economics and Policy* ; september 1983.

"Taking the Team on Board", *Loyd's Ship Manager*; June, 1984.

The North of England P & I Association L.T.D. , *Rules 1984 - 85* ; Newcastle, 1984.

UNCTAD, "Conference Practices and Adequacy of Shipping Services" , *The liner Conference System, Report by the UNCTAD Secretariat* ; Geneva 1970.

UNCTAD, "Establishment or Expansion of Merchant Marines in Developing Countries", *Report by UNCTAD Secretariat. , TD/26/Rev.1* ; New York, 1968.

UNCTAD, "Merchant Fleet Development, Ship Financing for developing countries", *Report by UNCTAD Secretariat*, TD/B/C.4/299 ; Geneva, December 1985.

World merchant fleet in 1900

Country	*Steamships*	*Sailing ships*	*Total*
British empire	**10,780,000**	**2,683,000**	**13,463,000**
United States	**1,105,000**	**1,222,000**	**2,327,000**
Germany	**1,550,000**	**480,000**	**2,030,000**
Norway	**506,000**	**1,070,000**	**1,576,000**
France	**955,000**	**207,000**	**1,162,000**
Italy	**402,000**	**408,000**	**810,000**
Spain	**507,000**	**81,000**	**588,000**
Russia	**312,000**	**238,000**	**550,000**
Sweden	**293,000**	**230,000**	**523,000**
Netherlands	**341,000**	**93,000**	**434,000**
Japan	**405,000**	**18,000**	**423,000**
Denmark	**283,000**	**124,000**	**407,000**
Rest of the world	**1,167,000**	**447,000**	**1,614,000**
Total gross tons	**18,606,000**	**7,301,000**	**25,907,000**

Source: Rigmor, T. and Brodefords, R., "The Commercial History of Shipping"; Gothenburg, Sweden, 1983; p.63.

THE WORLD MERCHANT FLEET[a.]

-Vessels of 300 grt & dwt and over -

TOTAL WORLD MERCHANT FLEET BY FLAGS AS OF OCTOBER 1st, 1985

No Flag	No of ships	grt (b)	nrt	dwt	share of flag (dwt-%)
1 Liberia	1 647	55 176 614	41 508 664	107 316 276	17.19
2 Panama	3 850	37 556 018	24 476 783	63 285 027	10.14
3 Japan	3 974	36 476 599	22 074 636	58 382 209	9.35
4 Greece	1 863	27 816 239	18 749 980	49 043 981	7.86
5 USSR	3 057	19 702 686	10 330 515	26 535 180	4.25
6 US	986	16 554 008	11 191 862	25 706 598	4.12
7 Norway	656	13 411 928	9 146 698	23 421 119	3.75
8 UK	901	13 041 632	8 310 631	20 672 466	3.31
9 PR of China	1 146	10 051 466	5 905 801	15 259 267	2.44
10 Cyprus	776	7 560 705	5 131 750	13 060 417	2.09
11 France	339	7 518 899	5 178 198	12 476 704	2.00
12 Italy	782	7 394 619	4 559 682	12 151 127	1.95
13 Hong Kong	254	6 663 651	4 278 805	11 050 842	1.77
14 Singapore	493	6 340 673	4 322 072	10 846 287	1.74
15 India	418	6 190 696	3 992 254	10 267 202	1.64
16 South Korea	661	6 028 421	3 890 579	10 416 977	1.67
17 Brazil	393	5 850 007	4 028 757	9 741 537	1.56
18 Germany, FR of	1 061	5 489 161	3 554 317	8 399 289	1.35
19 Spain	649	5 229 660	3 576 412	10 430 183	1.67
20 Denmark (c)	499	4 548 491	2 756 957	7 218 409	1.16
21 Philippines	481	4 141 277	2 700 193	6 985 674	1.12
22 Bahamas	139	4 013 667	2 888 120	7 111 294	1.14
23 Taiwan	208	3 798 144	2 196 671	6 018 909	0.96
24 Netherlands (d)	661	3 771 389	2 241 079	5 316 940	0.85
25 Turkey	561	3 557 543	2 316 818	6 202 918	0.99
26 Sweden	326	3 241 255	1 960 624	4 839 581	0.78
27 Poland	301	3 021 373	1 790 373	4 318 515	0.69
28 Romania	281	2 951 848	1 805 358	4 618 188	0.74
29 Saudi Arabia	223	2 735 813	1 813 200	4 542 160	0.73
30 Yugoslavia	311	2 669 326	1 662 433	4 112 636	0.66
31 Kuwait	90	2 224 332	1 354 897	3 443 503	0.55
32 Belgium	97	2 151 685	1 566 752	3 683 444	0.59
33 Argentina	196	2 115 265	1 249 551	3 215 558	0.52
34 Iran	141	1 893 060	1 282 811	3 276 266	0.52
35 Finland	171	1 866 141	1 099 143	2 797 818	0.45
36 Australia	90	1 858 788	1 093 034	2 979 896	0.48
37 Malaysia	271	1 660 296	1 102 210	2 458 709	0.39
38 Indonesia	746	1 639 164	992 433	2 403 616	0.39
39 Malta	180	1 513 083	979 408	2 449 522	0.39
40 GDR	189	1 322 364	727 943	1 760 384	0.28
41 Canada	185	1 268 332	870 101	1 926 211	0.31
42 Bulgaria	120	1 232 506	691 667	1 836 113	0.29
43 Mexico	101	1 178 640	724 566	1 838 546	0.29
44 Portugal	82	1 077 592	780 243	1 882 199	0.30
45 Algeria	75	1 058 857	675 090	1 477 273	0.24
46 Iraq	44	920 272	636 094	1 606 014	0.26
47 Libya	35	889 757	655 186	1 612 912	0.26
48 Egypt	163	848 471	512 978	1 225 219	0.20
49 Bermuda	61	847 415	518 514	1 203 168	0.19
50 Venezuela	104	835 633	484 296	1 254 173	0.20
51 Cuba	119	797 137	461 958	1 081 206	0.17
52 Peru	72	644 501	404 332	979 036	0.16
53 Sri Lanka	62	592 754	373 343	952 612	0.15
54 Israel	48	521 445	293 100	690 016	0.11
55 Thailand	166	513 615	300 786	768 112	0.12
56 South Africa	16	511 771	313 897	614 872	0.10
57 North Korea	53	485 312	300 753	826 821	0.13
58 Pakistan	55	479 026	281 527	710 745	0.11
59 UAE	102	469 229	279 896	765 423	0.12
60 Gibraltar	59	452 163	322 696	821 994	0.13

No Flag	No of ships	grt (b)	nrt	dwt	share of flag (dwt-%)
61 Lebanon	206	440 690	257 942	688 025	0.11
62 Ecuador	62	438 922	260 199	625 966	93,70→0.10
63 Nigeria	40	408 498	248 325	596 237	0.10
64 Chile	44	377 841	255 652	681 415	0.11
65 Morocco	60	366 677	213 310	603 892	0.10
66 Cayman Isl.	147	350 649	198 654	545 842	0.09
67 Colombia	53	343 376	194 239	439 642	0.07
68 Switzerland	34	335 373	205 580	527 139	0.08
69 Honduras	207	333 708	190 933	494 033	0.08
70 Qatar	22	325 622	203 025	489 746	0.08
71 Bangladesh	130	305 829	173 878	434 595	0.07
72 Tunisia	29	277 512	176 780	442 087	0.07
73 New Zealand	36	270 220	149 582	326 271	0.05
74 Viet Nam	67	253 614	153 680	396 932	0.06
75 Cameroon	8	249 532	188 035	452 144	0.07
76 St. Vincent	49	214 633	132 636	330 385	0.05
77 Ireland	66	208 467	124 237	274 534	0.04
78 Czechoslovakia	19	184 298	115 355	276 870	0.04
79 Uruguay	22	145 808	96 367	233 770	0.04
80 Gabon	9	144 822	93 501	252 593	0.04
81 Ivory Coast	15	132 811	70 585	172 771	0.03
82 Austria	28	126 444	77 308	214 866	0.03
83 Vanuatu	12	110 322	76 208	191 618	0.03
84 Burma	29	96 468	57 737	130 194	0.02
85 Maldives	23	96 411	56 882	150 626	0.02
86 Sudan	12	94 836	56 455	128 682	0.02
87 Ghana	13	90 411	54 199	123 078	0.02
88 Iceland	45	79 412	49 931	134 253	0.02
89 Hungary	18	74 936	39 244	106 081	0.02
90 Angola	24	74 633	47 303	115 317	0.02
91 Zaire	8	70 627	47 258	106 674	0.02
92 Madagascar	24	66 838	38 223	93 832	0.02
93 Nauru	6	64 742	43 018	92 237	0.01
94 Ethiopia	16	57 623	31 655	73 670	0.01
95 Syria	38	52 805	29 060	74 315	0.01
96 Togo	5	52 676	32 918	77 260	0.01
97 Albania	15	51 776	30 246	76 475	0.01
98 Tanzania	14	40 759	23 849	54 836	0.01
99 Dominican. Rep.	25	38 364	23 136	61 414	0.01
100 Paraguay	30	37 850	21 958	49 391	0.01
101 Jordan	5	37 374	22 056	60 736	0.00
102 Mauritius	5	33 464	21 722	52 805	0.00
103 Bahrain	14	28 645	13 297	48 396	0.00
104 Samoa	3	24 930	15 470	34 867	0.00
105 Mozambique	12	23 694	13 713	36 983	0.00
106 Papua New Guinea	26	21 741	12 682	29 313	0.00
107 Fiji Isl.	13	18 439	10 699	20 069	0.00
108 Senegal	8	17 536	10 158	25 606	0.00
109 Nicaragua	5	15 680	10 011	23 545	0.00
110 Somalia	5	15 573	8 488	18 764	0.00
111 Bolivia	2	14 697	7 694	19 150	0.00
112 Costa Rica	13	14 177	7 206	18 759	0.00
113 Tonga	10	13 202	6 816	19 358	0.00
114 Suriname	8	12 162	7 117	17 392	0.00
115 Cape Verde	8	10 015	6 475	18 112	0.00
116 Guyana	19	8 981	4 563	10 156	0.00
117 Trinidad & Tobago	7	8 449	4 342	6 443	0.00
118 Guatemala	2	8 214	5 109	12 851	0.00
119 Jamaica	4	7 786	4 831	12 873	0.00
120 Equatorial Guinea	2	6 412	3 583	6 700	0.00

No Flag	No of ships	grt (b)	nrt	dwt	share of flag (dwt-%)
121 Monaco	2	5 275	3 221	7 806	0.00
122 Rep. Yemen	4	4 529	2 341	7 419	0.00
123 Barbados	3	4 034	2 706	8 738	0.00
124 Oman	6	3 829	1 957	5 642	0.00
125 St. Helena	2	3 640	2 094	2 820	0.00
126 Uganda	2	3 394	2 186	3 400	0.00
127 Virgin Island	8	3 170	1 692	3 809	0.00
128 Benin	1	2 999	1 894	4 400	0.00
129 Kiribati	4	2 651	1 307	2 129	0.00
130 Djibouti	2	2 407	1 432	3 581	0.00
131 Kenya	2	2 152	1 195	3 162	0.00
132 Turks & Caicos Isl.	4	1 879	1 052	2 478	0.00
133 Anguilla	4	1 643	896	2 336	0.00
134 Gambia	1	1 597	977	2 900	0.00
135 Arab Rep. Yemen	3	1 260	685	1 340	0.00
136 Cambodia	1	998	557	1 458	0.00
137 Solomon Isl.	2	846	408	1 153	0.00
138 Montserrat	1	711	334	1 016	0.00
139 Seychelles	1	580	449	928	0.00
140 Guinea Rep.	1	387	178	510	0.00
141 Saint Lucia	1	386	189	498	0.00
142 Brunei	1	382	216	421	0.00
143 Tuvalu	1	353	163	600	0.00
144 Comoros	1	325	97	401	0.00
145 St. Christopher & Nevis	1	300	165	368	0.00
All flags	33 730	374 250 147	244 432 933	624 191 192	100.00
October 1st, 1984	34 087	378 898 284	251 766 425	637 919 227	
October 1st, 1983	34 366	383 974 369	257 854 744	650 252 764	
October 1st, 1982	34 723	389 175 660	262 197 115	661 586 860	

(a) In the strict sense, i.e. sea-going cargo and/or passenger carrying vessels and tonnage for commercial purpose only (incl. US Reserve Fleet of about 1.3 Mill grt).

(b) In case of double measurement the tonnage figures refer to full scantling vessels as opposed to shelterdeckers; other measurement techniques are not considered.

(c) Including Faroe Islands.

(d) Including Netherlands Antilles.

NOTE: For detailed figures concerning the 'World Merchant Fleet' compare the December issue of this periodical.

Source: Institute of Shipping Economics and Logistics (ISL), Bremen

TOTAL WORLD MERCHANT FLEET BY COUNTRY GROUP AS OF OCTOBER 1st, 1985
- Ships of 300 grt/dwt and over -

Country group	No	1000 grt	1000 nrt	1000 dwt	Share of dwt (in %) October 85	July 85	April 85	January 85
TANKER								
OECD	3692	65649	46160	121191	45.4	46.8	47.3	47.4
of which EC	1313	27123	19417	50576	18.9	19.7	19.8	20.1
CMEA	634	6828	3772	10525	3.9	3.9	3.8	3.6
OPEN REGISTRIES	1441	49248	37560	97704	36.6	35.0	34.9	35.4
THIRD WORLD	1510	19611	13413	34461	12.9	13.1	12.9	12.7
OTHERS	177	1907	1125	3183	1.2	1.2	1.1	0.9
TOTAL	7454	143243	102029	267064	100.0	100.0	100.0	100.0
DRY CARGO								
OECD	10400	91644	55474	137817	38.6	39.1	40.0	41.0
of which EC	4956	44818	27624	68661	19.2	19.6	20.5	21.2
CMEA	3590	23198	12645	31231	8.7	8.6	8.5	8.4
OPEN REGISTRIES	5032	55906	36964	94272	26.4	26.3	26.3	26.1
THIRD WORLD	5702	46910	29227	73647	20.6	20.5	20.1	19.5
OTHERS	1552	13348	8093	20160	5.6	5.5	5.1	5.0
TOTAL	26276	231007	142404	357127	100.0	100.0	100.0	100.0
TOTAL WORLD MERCHANT FLEET								
OECD	14092	157294	101634	259008	41.5	42.5	43.2	43.8
of which EC	6269	71941	47042	119237	19.1	19.7	20.2	20.7
CMEA	4224	30026	16417	41756	6.7	6.6	6.4	6.3
OPEN REGISTRIES	6473	105154	74524	191976	30.8	30.1	30.0	30.2
THIRD WORLD	7212	66521	42641	108108	17.3	17.2	17.0	16.5
OTHERS	1729	10000	9218	23343	3.7	3.6	3.4	3.2
TOTAL	33730	368995	244433	624191	100.0	100.0	100.0	100.0

Note: 'Open Registries' Liberia, Panama, Cyprus, Bermuda, Bahamas; 'Third World' Asia and Oceania except Taiwan, Japan, Australia, and New Zealand; 'Others' PR of China, Yugoslavia, Malta, South Africa, Albania, Gibraltar and Monaco.

Source: Institute of Shipping Economics & Logistics (ISL), Bremen

Comparison of Cost Distribution for three UK flag vessels (as percentage of total costs, 1981).

	1000 TEU Container vessel %		25,000 DWT Bulk vessel %		110, DWT Bulk vessel %
Capital costs		59		40	42
Operational costs		20		23	18
Manning	9		12	9	
Spares and lube oil	2		3	2	
Maintenance and repairs	4		3	3	
Insurance	3		3	2	
Administration	2		2	2	
Voyage costs		21		37	40
Fuel	19		30	37	
Port	2		4	3	
Canal					
		100		100	100

Source: Drewry Shipping Consultants (1982)
Quoted in Maritime Policy and Management (Jan-Mar 1984)

C. NSF 83

MEMORANDUM OF AGREEMENT

Norwegian Shipbrokers' Association's Memorandum of Agreement for sale and purchase of ships. Adopted by The Baltic and International Maritime Conference (BIMCO).
Code-name
SALEFORM 1983
Adopted 1956 Revised 1983

Dated:

hereinafter called the Sellers, have today sold, and

hereinafter called the Buyers, have today bought

Classification:
Built: by:
Flag: Place of Registration:
Call sign: Register tonnage:
Register number:
on the following conditions:

1. Price
Price:

2. Deposit
As a security for the correct fulfillment of this contract, the Buyers shall pay a deposit of 10% — ten per cent — of the Purchase Money within banking days from the date of this agreement. This amount shall be deposited with

and held by them in a joint account for the Sellers and the Buyers. Interest, if any, to be credited the Buyers. Any fee charged for holding said deposit shall be borne equally by the Sellers and the Buyers.

3. Payment
The said Purchase Money shall be paid free of bank charges to

on delivery of the vessel, but not later than three banking days after the vessel is ready for delivery and written or telexed notice thereof has been given to the Buyers by the Sellers.

4. Inspections
The Buyers shall have the right to inspect the vessel's classification records and declare whether same are accepted or not within
The Sellers shall provide for inspection of the vessel at/in

The Buyers shall undertake the inspection without undue delay to the vessel. Should the Buyers cause such delay, they shall compensate the Sellers for the losses thereby incurred.

The Buyers shall inspect the vessel afloat without opening up and without cost to the Sellers. During the inspection, the vessel's log books for engine and deck shall be made available for the Buyers' examination. If the vessel is accepted after such afloat inspection, the purchase shall become definite — except for other possible subjects in this contract — provided the Sellers receive written or telexed notice from the Buyers within 48 hours after completion of such afloat inspection. Should notice of acceptance of the vessel's classification records and of the vessel not be received by the Sellers as

aforesaid, the deposit shall immediately be released, whereafter this contract shall be considered null and void.

5. Place and time of delivery

The vessel shall be delivered and taken over at/in

Time of delivery/date of cancelling:

The Sellers shall keep the Buyers well posted about the vessel's itinerary and estimated time and place of drydocking.

Should the vessel become a total or constructive total loss before delivery the deposit shall immediately be released to the Buyers and the contract thereafter considered null and void.

6. Drydocking

In connection with the delivery the Sellers shall place the vessel in drydock at the port of delivery for inspection by the Classification Society of the bottom and other underwater parts below the Summer Load Line. If the rudder, propeller, bottom or other underwater parts below the Summer Load Line be found broken, damaged or defective, so as to affect the vessel's clean certificate of class, such defects shall be made good at the Sellers' expense to [1]

satisfaction without qualification on such underwater parts. [2]

Whilst the vessel is in drydock, and if required by the Buyers or the representative of the Classification Society, the Sellers shall arrange to have the tail-end shaft drawn. Should same be condemned or found defective so as to affect the vessel's clean certificate of class, it shall be renewed or made good at the Sellers' expense to the Classification Society's satisfaction without qualification.

The expenses of drawing and replacing the tail-end shaft shall be borne by the Buyers unless the Classification Society requires the tail-end shaft to be drawn (whether damaged or not), renewed or made good in which event the Sellers shall pay these expenses.

The expenses in connection with putting the vessel in and taking her out of drydock, including drydock dues and the Classification Surveyor's fees shall be paid by the Sellers if the rudder, propeller, bottom, other underwater parts below the Summer Load Line or the tail-end shaft be found broken, damaged or defective as aforesaid or if the Classification Society requires the tail-end shaft to be drawn (whether damaged or not). In all other cases the Buyers shall pay the aforesaid expenses, dues and fees.

During the above mentioned inspections by the Classification Society the Buyers' representative shall have the right to be present in the drydock but without interfering with the Classification Surveyor's decisions.

The Sellers shall bring the vessel to the drydock and from the drydock to the place of delivery at their own expense.

7. Spares/bunkers etc.

The Sellers shall deliver the vessel to the Buyers with everything belonging to her on board and on shore. All spare parts and spare equipment including spare tail-end shaft(s) and/or spare propeller(s), if any, belonging to the vessel at the time of inspection, used or unused, whether on board or not shall become the Buyers' property, but spares on order to be excluded. Forwarding charges, if any, shall be for the Buyers' account. The Sellers are not required to replace spare parts including spare tail-end shaft(s) and spare propeller(s) which are taken out of spare and used as replacement prior to delivery, but the replaced items shall be the property of the Buyers. The radio installation and navigational equipment shall be included in the sale without extra payment, if same is the property of the Sellers.

The Sellers have the right to take ashore crockery, plate, cutlery, linen and other articles bearing the Sellers' flag or name, provided they replace same with similar unmarked items. Library, forms, etc., exclusively for use in the Sellers' vessels, shall be excluded without compensation. Captain's, Officers' and Crew's personal belongings including slop chest to be excluded from the sale, as well as the following additional items:

The Buyers shall take over remaining bunkers, unused lubricating oils and unused stores and provisions and pay the current market price at the port and date of delivery of the vessel.

Payment under this clause shall be made at the same time and place and in the same currency as the Purchase Money.

8. Documentation

In exchange for payment of the Purchase Money the Sellers shall furnish the Buyers with legal Bill of Sale of the said vessel free from all encumbrances and maritime liens or any other debts whatsoever, duly notarially attested and legalised by the consul together with a certificate stating that the vessel is free from registered encumbrances. On delivery of the vessel the Sellers shall provide for the deletion of the vessel from the Registry of Vessels and deliver a certificate of deletion to the Buyers. The deposit shall be placed at the disposal of the Sellers as well as the balance of the Purchase Money, which shall be paid as agreed together with payment for items mentioned in clause 7 above.

The Sellers shall, at the time of delivery, hand to the Buyers all classification certificates as well as all plans etc. which are onboard the vessel. Other technical documentation which may be in the Sellers' possession shall promptly upon the Buyers' instructions be forwarded to the Buyers. The Sellers may keep the log books, but the Buyers to have the right to take copies of same.

9. Encumbrances

The Sellers warrant that the vessel, at the time of delivery, is free from all encumbrances and maritime liens or any other debts whatsoever. Should any claims which have been incurred prior to the time of delivery be made against the vessel, the Sellers hereby undertake to indemnify the Buyers against all consequences of such claims.

10. Taxes etc.

Any taxes, fees and expenses connected with the purchase and registration under the Buyers' flag shall be for the Buyers' account, whereas similar charges connected with the closing of the Sellers' register shall be for the Sellers' account.

11. Condition on delivery

The vessel with everything belonging to her shall be at the Sellers' risk and expense until she is delivered to the Buyers, but subject to the conditions of this contract, she shall be delivered and taken over as she is at the time of inspection, fair wear and tear excepted.

However, the vessel shall be delivered with present class free of recommendations. The Sellers shall notify the Classification Society of any matters coming to their knowledge prior to delivery which upon being reported to the Classification Society would lead to the withdrawal of the vessel's class or to the imposition of a recommendation relating to her class.

12. Name/markings

Upon delivery the Buyers undertake to change the name of the vessel and alter funnel markings.

13. Buyers' default

Should the deposit not be paid as aforesaid, the Sellers have the right to cancel this contract, and they shall be entitled to claim compensation for their losses and for all expenses incurred together

with interest at the rate of 12% per annum.

Should the Purchase Money not be paid as aforesaid, the Sellers have the right to cancel this contract, in which case the amount deposited together with interest earned, if any, shall be forfeited to the Sellers. If the deposit does not cover the Sellers' losses, they shall be entitled to claim further compensation for their losses and for all expenses together with interest at the rate of 12% per annum.

14. Sellers' default

If the Sellers fail to execute a legal transfer or to deliver the vessel with everything belonging to her in the manner and within the time herein specified, the Buyers shall have the right to cancel this contract in which case the deposit in full shall be returned to the Buyers together with interest at the rate of 12% per annum. The Sellers shall make due compensation for the losses caused to the Buyers by failure to execute a legal transfer or to deliver the vessel in the manner and within the time herein specified, if such are due to the proven negligence of the Sellers.

15. Arbitration

If any dispute should arise in connection with the interpretation and fulfilment of this contract, same shall be decided by arbitration in the city of[3]
and shall be referred to a single Arbitrator to be appointed by the parties hereto. If the parties cannot agree upon the appointment of the single Arbitrator, the dispute shall be settled by three Arbitrators, each party appointing one Arbitrator, the third being appointed by[4]

If either of the appointed Arbitrators refuses or is incapable of acting, the party who appointed him, shall appoint a new Arbitrator in his place.

If one of the parties fails to appoint an Arbitrator — either originally or by way of substitution — for two weeks after the other party having appointed his Arbitrator has sent the party making default notice by mail, cable or telex to make the appointment, the party appointing the third Arbitrator shall, after application from the party having appointed his Arbitrator, also appoint an Arbitrator on behalf of the party making default.

The award rendered by the Arbitration Court shall be final and binding upon the parties and may if necessary be enforced by the Court or any other competent authority in the same manner as a judgement in the Court of Justice.

This contract shall be subject to the law of the country agreed as place of arbitration.

1) The name of the Classification Society to be inserted.
2) Notes, if any, in the Surveyor's report which are accepted by the Classification Society without qualification are not to be taken into account
3) The place of arbitration to be inserted If this line is not filled in, it is understood that arbitration will take place in London in accordance with English law
4) If this line is not filled in it is understood that the third Arbitrator shall be appointed by the London Maritime Arbitrators' Association in London.

Appendix to Memorandum of Agreement code-name SALEFORM 1983 — dated